

August 2015



# REVISED TOTAL COLIFORM RULE (RTCR)

**Implementation Date:** April 1, 2016

<http://www.drinkingwater.vt.gov>

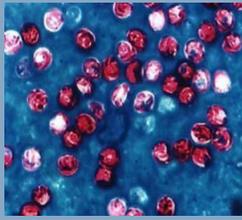
**DRINKING WATER AND GROUNDWATER PROTECTION DIVISION**

# OUTLINE



# BACKGROUND: TOTAL COLIFORM RULE

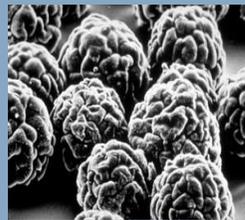
- Published 1989, effective 1990
- There are a variety of waterborne pathogens that can cause health issues:



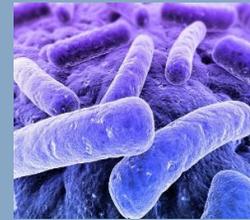
cryptosporidium  
oocysts



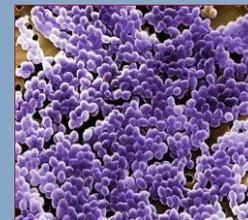
giardia lamblia



poliovirus



legionella



enterococci

- Total coliform is an indicator of the presence of waterborne pathogens
- Regular monitoring of total coliform bacteria to:
  - Verify the integrity of the distribution system
  - Evaluate the effectiveness of treatment
  - Signal possible fecal contamination

# BACKGROUND: TOTAL COLIFORM RULE

- Total coliform MCL Goal = 0
- Routine monitoring for TC at a frequency proportional to system population
- Follow-up sampling required for TC+
- MCL Violations (based on sample results)
  - Non-acute (total coliform):
    - Systems under 33,000: 2 or more TC+ samples in a month
    - Systems above 33,000: 5% or more samples are TC+ in a month
  - Acute (E. coli):
    - TC+ RT with EC+ RP
    - EC+ RT with TC+ RP
- Monitoring and Reporting Violations for failure to report sample results
- Public Notice required for MCL and Monitoring and Reporting Violations
- All violations must be reported in the Consumer Confidence Reports

The TCR has been successful in protecting against waterborne disease and outbreaks.

However

- The number of violations have remained steady
- Any improvements likely to occur under the TCR have largely been achieved

**Question:**

**How can we achieve greater public health protection?**

## Goal

Increase protection of public health by reducing **sanitary defects** that allow fecal contamination and/or waterborne pathogens to enter a distribution system or could indicate a failure or imminent failure in a barrier that is already in place.

# TRANSITION TO THE RTCR

## What will stay the same?

1. Continue to conduct bacteriological monitoring
2. Continue to use total coliform and E. coli as indicators

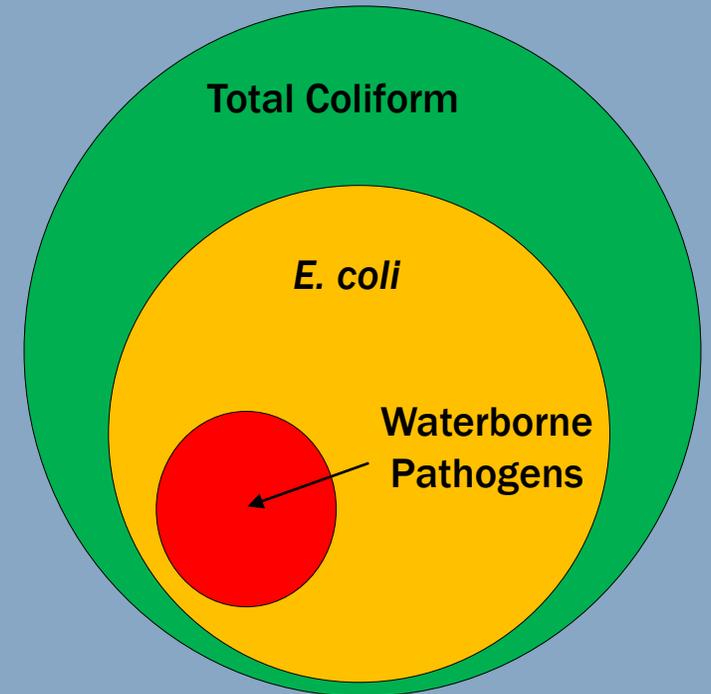
## What will change?

1. “Find and Fix”
2. More stringent requirements for maintaining quarterly monitoring for Non-Community systems (where applicable)
3. Increased requirements for “seasonal” systems
  1. Monthly Sampling for groundwater systems
  2. Completion of State-approved start-up procedure
4. Completion of Bacteriological Monitoring Plans

# OUTLINE



- Total Coliforms are still used as an indicator of system integrity
- However, total coliforms are not an immediate health concern on their own



**NO MORE TOTAL COLIFORM MCL**

# E. COLI BACTERIA AS AN INDICATOR



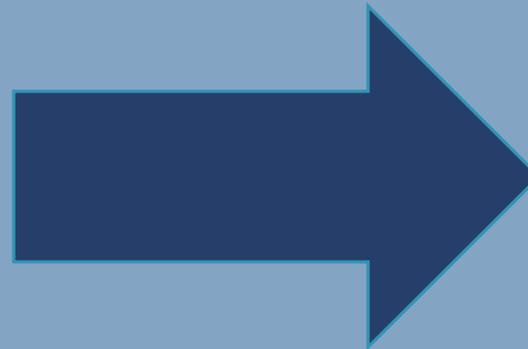
- E. coli still an indicator for fecal contamination
- E. coli MCL Goal = 0 maintained from the TCR
- E. coli MCL Violations under the RTCR
  - TC+ RT → EC+ RP
  - EC+ RT → TC+ (or EC+) RP
  - TC+ RT → TC+ RP and E. coli not analyzed
  - EC+ RT → No RP samples collected
- Public Notice within 24 hours required

Effective April 1, 2016

Yes	No
EC MCL	<b>TC+ Results</b>
Precautionary for:	
<ul style="list-style-type: none"><li>• Failure to collect RP within 24 hours following EC+</li></ul>	
<ul style="list-style-type: none"><li>• Operational Issues (leaks, fire events, bulk water hauling, depressurization)</li></ul>	
<ul style="list-style-type: none"><li>• Following certain findings in Level 1 and 2 site assessments</li></ul>	

# “FIND AND FIX”

- TC as a more suitable indicator of system operation and integrity not public health
- Improved consumer confidence and public perception in water systems





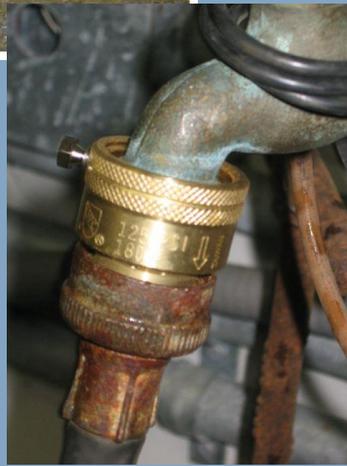
## Level 1 Site Assessment

- 2 or more TC+ samples in a month
- Failure to take EVERY repeat sample following TC+ Routine sample

## Level 2 Site Assessment

- E. coli MCL
- Second Level 1 trigger in 12 months

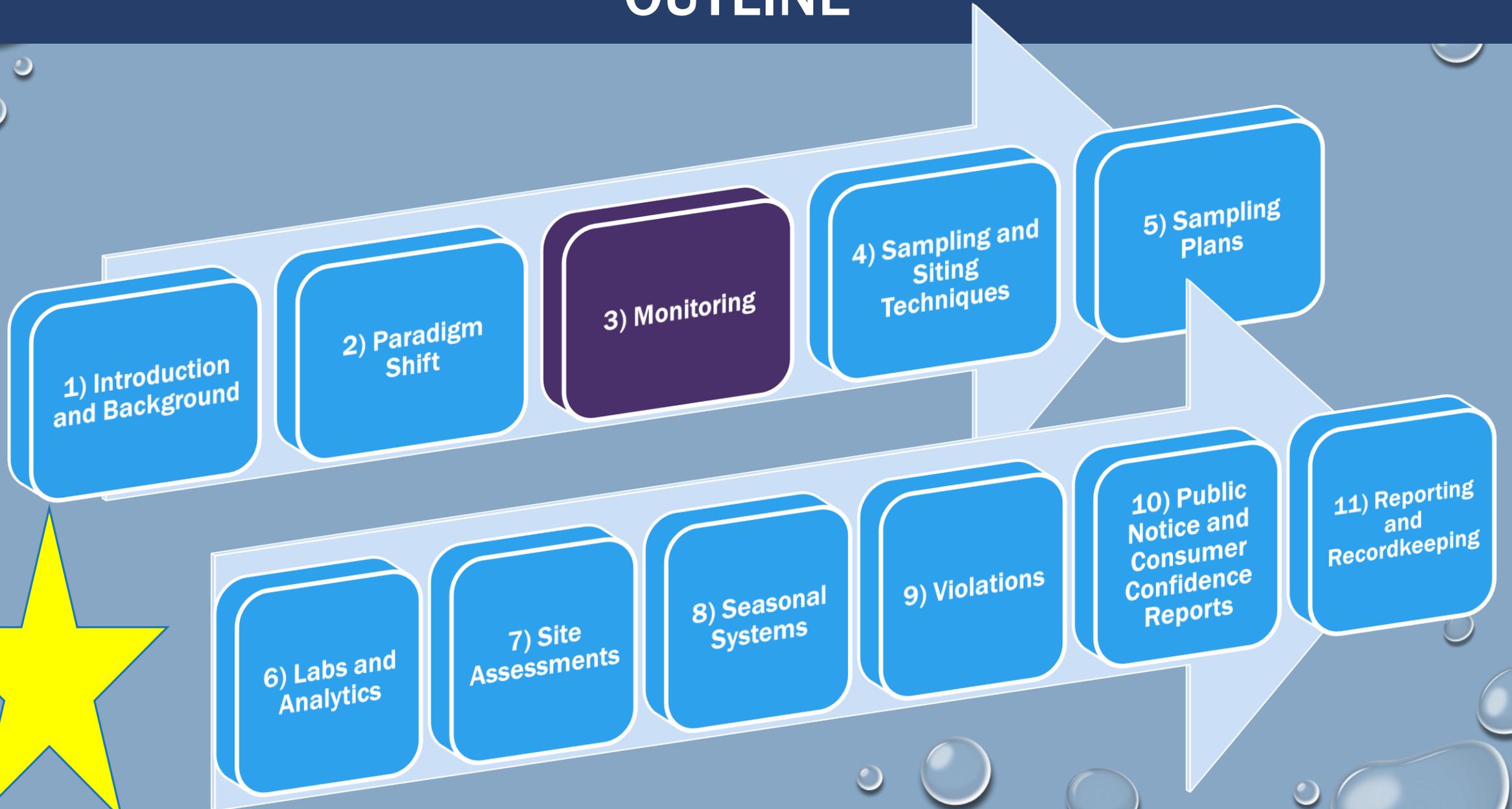
# FIND AND FIX



The RTCR will result in:

- Increase in site assessments
  - ↳ Decrease in TC/EC +
    - ↳ Decrease in public health risk
  - ↳ Increased operator knowledge of system operation
- Better system performance over time
- Certain “violations” under the current TCR become “triggers” under the RTCR

# OUTLINE



# NUMBER OF SAMPLES PER MONITORING PERIOD

Population	Number of Samples
25 – 1,000	1
1,001 – 2,500	2
2,501 – 3,300	3
3,301 – 4,100	4
4,101 – 4,900	5
4,901 – 5,800	6
5,801 – 6,700	7
6,701 – 7,600	8

Population	Number of Samples
7,601 – 8,500	9
8,501 – 12,900	10
12,901 – 17,200	15
17,201 – 21,500	20
21,501 – 25,000	25
25,001 – 33,000	30
33,001 – 41,000	40
41,001 – 50,000	50

- **Systems taking more than 1 sample must take the samples at regular intervals throughout the month.**
- **Groundwater Systems under 4,900 may take all samples on the same day if taken from different locations.**

# SAMPLING FREQUENCIES UNDER RTCR

- All Surface Water/GWUDI Systems: **Monthly** (Same as TCR)
- Community Water Systems: **Monthly** (Same as TCR)
- Non-Community, GW, over 1,000 in population: **Monthly** (Same as TCR)
- Seasonal, Transient Non-Community Systems: **MONTHLY**
- Year-round Non-Community, served by GW, 1,000 and under in population: **Quarterly** (Same as TCR) **until...**

# TRANSITION TO MONTHLY MONITORING

Year-round, Non-Community, on Groundwater, under 1,000 in population:  
Sample Quarterly unless and until ONE of the following happens:

<b>1) Level 2 Trigger</b>	<ul style="list-style-type: none"><li>• E. coli MCL Violation</li><li>• 2 X Level 1 Site Assessments over 12 month period</li></ul>
<b>2) E. Coli MCL Violation</b>	<ul style="list-style-type: none"><li>• TC+ RT → EC+ RP</li><li>• EC+ RT → TC+ RP (or EC)</li><li>• TC+ RT → TC+ <u>RP</u> and E. coli not analyzed</li><li>• EC+ RT → No Repeats Taken</li></ul>
<b>3) Total Coliform TT Violation</b>	<ul style="list-style-type: none"><li>• Fail to conduct Level 1 or Level 2 within 30 days of trigger</li><li>• Fail to correct sanitary defects in 30 days or by state-approved schedule</li></ul>
<b>4) Two RTCR Monitoring Violations or one RTCR Monitoring violation and one Level 1 site assessment in 12 months</b>	<ul style="list-style-type: none"><li>• Fail to RP sample</li><li>• Fail to analyze EC following TC+ <u>RT</u></li></ul>

# Transition (back) to Quarterly Monitoring

**Year-Round, Non-Community on Groundwater, under 1,000 in population.**

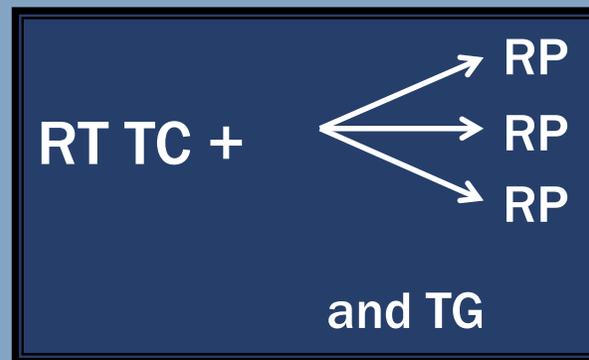
**Systems will be required to sample monthly until the issue that caused the increased monitoring is corrected and BOTH:**

**1) The system has had a sanitary survey or voluntary level 2 site assessment within the last 12 months, be free of sanitary defects, and have a protected source that meets construction standards;**

**2) Have a clean RTCR compliance history for the last 12 months. A clean compliance history means: No E. coli MCL violations, no monitoring violations, no TT Triggers (level 1 or 2 site assessments), and no TT violations (failure to conduct a level 1 or 2 assessment within 30 days of trigger, failure to correct sanitary defect within 30 days or under the state-approved schedule).**

# REPEAT SAMPLING UNDER RTCR

- Every Water System must take 3 repeat samples for **EACH** routine TC+ sample.
  1. Same sampling site as RT TC+
  2. +/- 5 connections/locations upstream
  3. +/- 5 connections/locations downstreamand GW Systems must take 1 triggered source water sample from each source that was active at the time of the TC +.



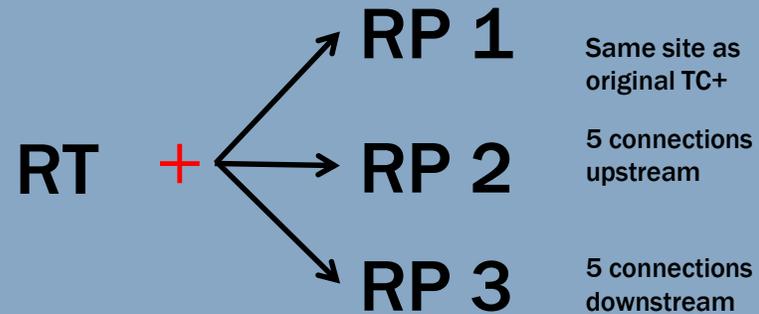
# Additional Routine Samples

## The Month Following a TC + Routine Sample:

- Monthly Systems: Resume normal monthly sampling according to plan and schedule.
- Quarterly Systems: must take **3** Additional Routine samples the month following the TC + sample.



## Month 1



and 1 TG for each active GW source

## Month 2

RT

If TC+

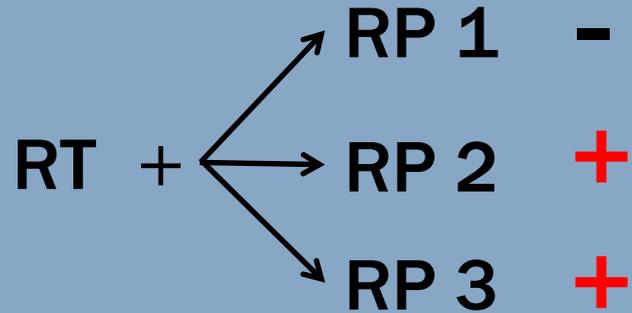


and 1 TG for each active GW source

# HYPOTHETICAL – SINGLE MONTHLY SAMPLE

System taking single monthly sample

Month 1



and 1 TG for each active  
GW source

Site Assessment Triggered

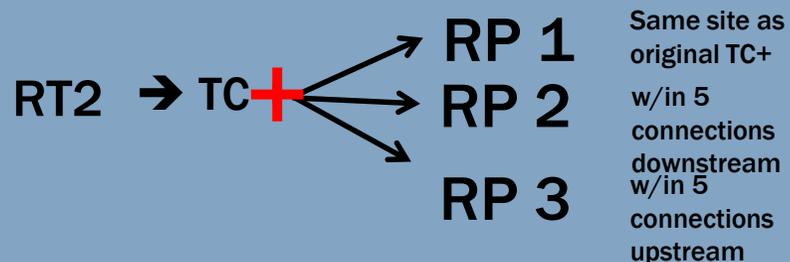
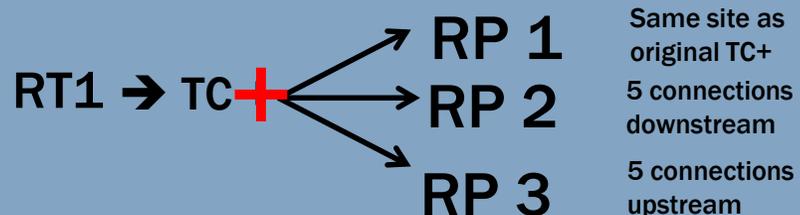
Month 2

RT -

No further action needed  
(upon completion of Site Assessment)

# Sampling Example: Multiple Monthly Routine Samples

## Month 1

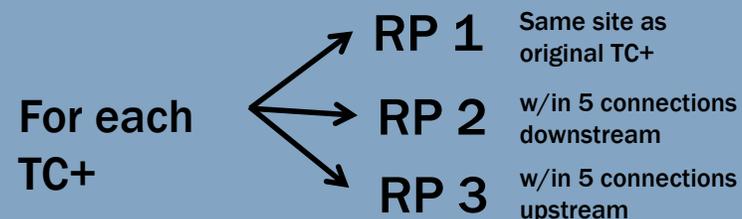


RT3 → TC-

and 1 TG for each active GW source

## Month 2

RT1



RT2

and 1 TG for each active GW source

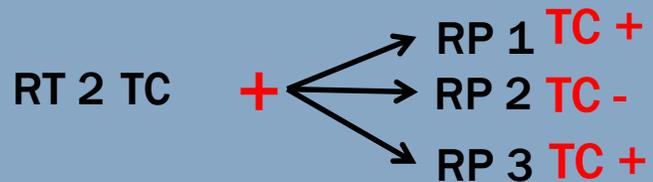
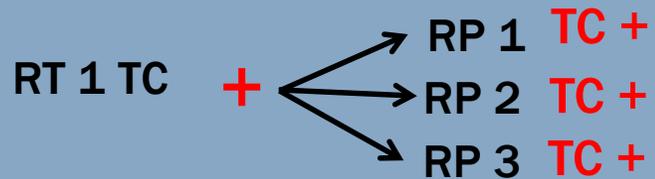
RT3

**\*Since 2 RT samples are TC+, it triggers an assessment**

# HYPOTHETICAL – MULTIPLE MONTHLY SAMPLES

## System Taking Multiple Monthly Samples

### Month 1

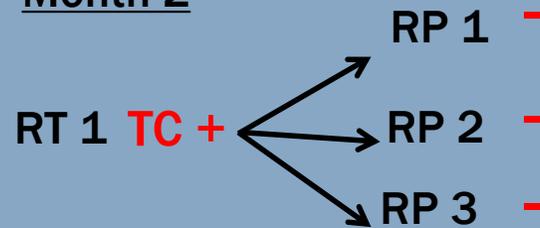


RT 3 TC -

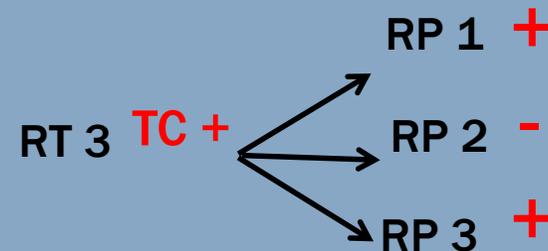
and TG for each active GW source

Assessment triggered, >2 TC+ samples in a month

### Month 2



RT 2 TC -

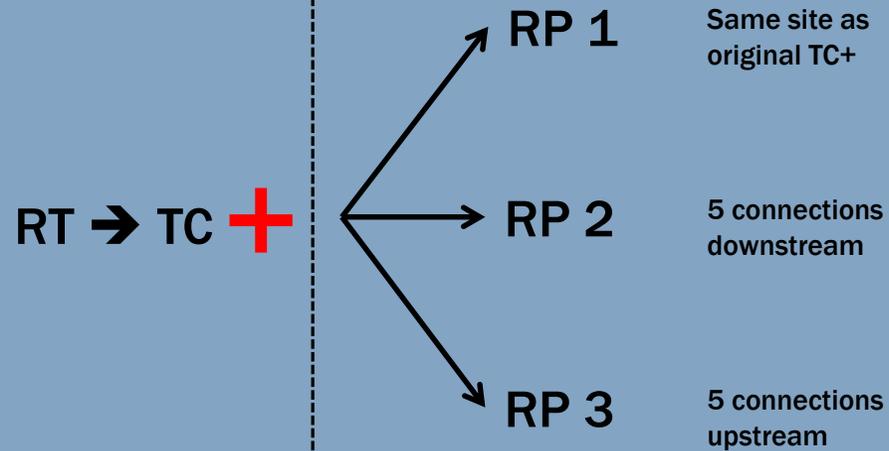


and TG for each active GW source

Second, separate assessment triggered, >2 TC+ samples in a month

# Sampling Example: Quarterly Routine Sample

## Month 1

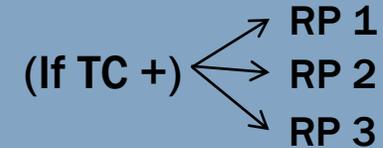


and 1 TG for each active GW source

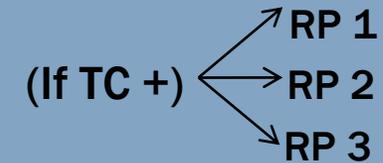
If any of the RP are TC +, an assessment is triggered

## Month 2

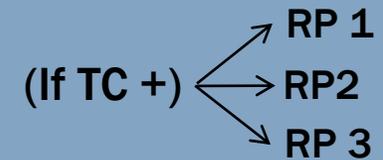
**Additional RT 1**



**Additional RT 2**



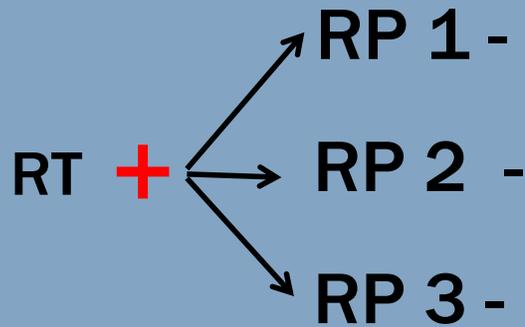
**Additional RT 3**



and 1 TG for each active GW source

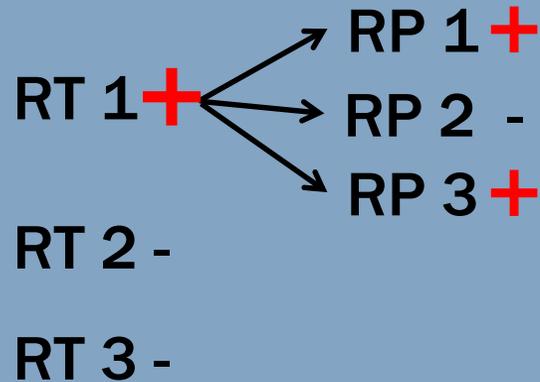
# HYPOTHETICAL - QUARTERLY MONITORING

## Month 1



and TG for each active GW source

## Month 2



and TG for each active GW source

**Assessment triggered**

## Month 3

If assessment from Month 2 is a **Level 1:**

- RT 1 -
- RT 2 -
- RT 3 -

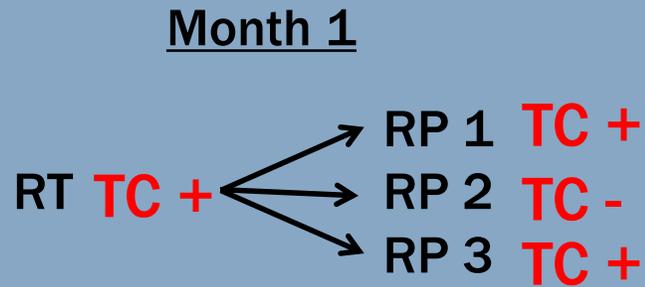
3 Additional Routines the month following a TC+, system on Quarterly Monitoring

If assessment from Month 2 is a **Level 2:**

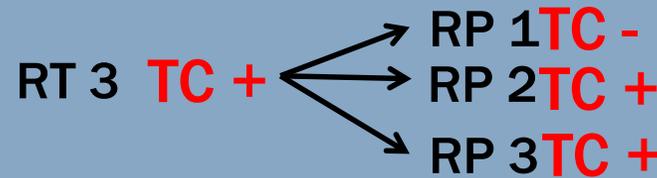
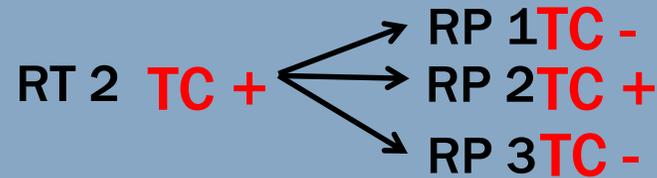
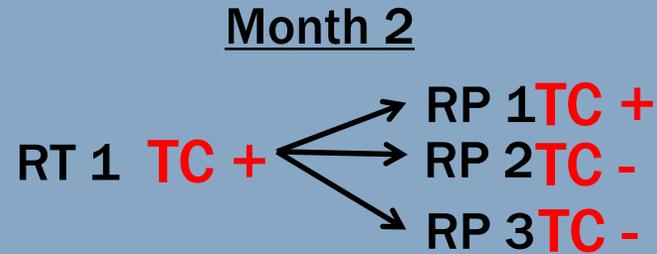
- RT 1 -

Monthly Monitoring is Triggered.

# WORST CASE SCENARIO: QUARTERLY SYSTEM WITH PERSISTENT ISSUES



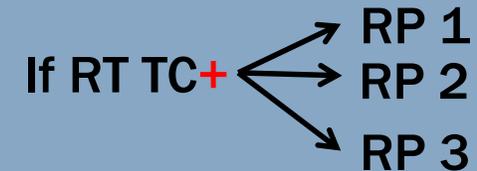
and TG for each active GW source



and TG for each active GW source

Month 3

Monthly Monitoring



and TG for each active GW source

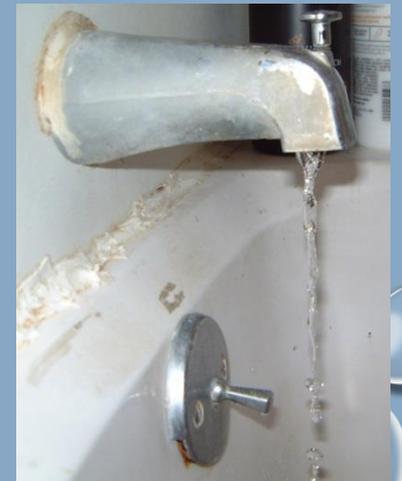
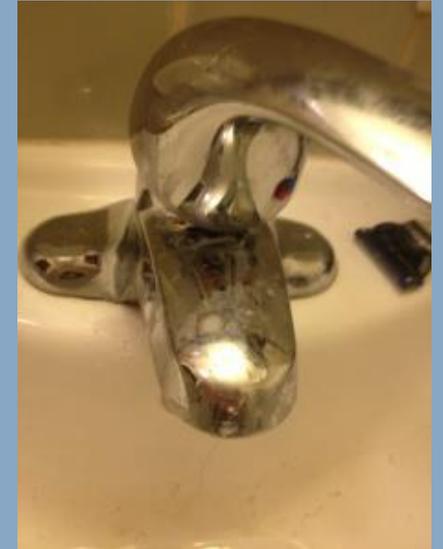
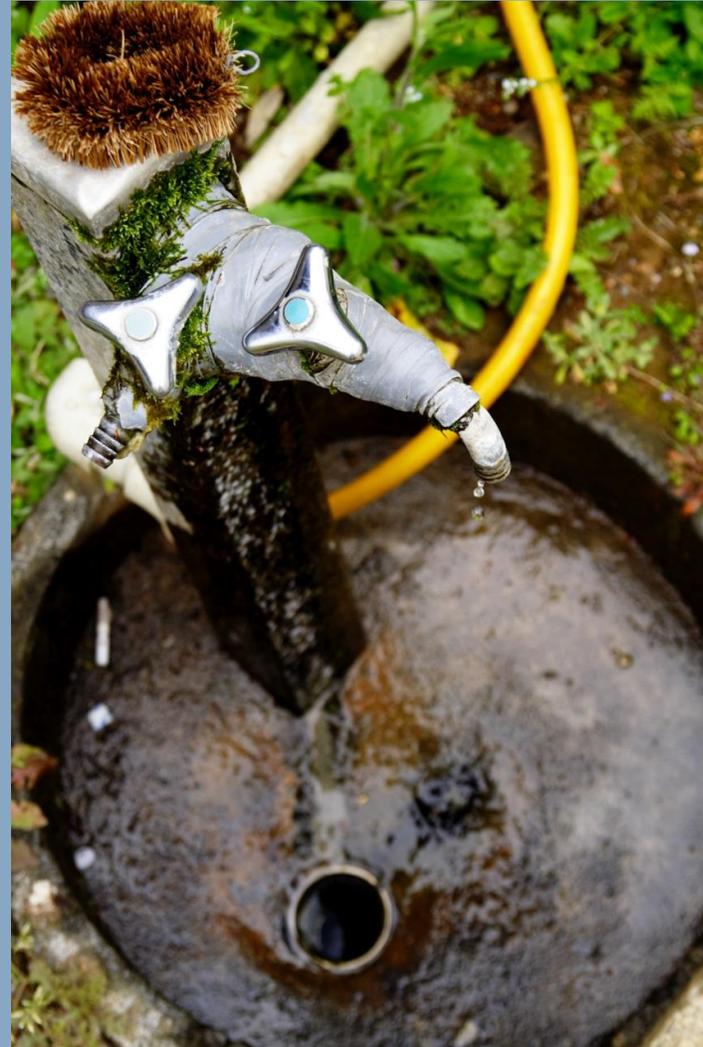
\*It may be possible to take 18 samples over 2 months before triggering monthly monitoring.



# OUTLINE

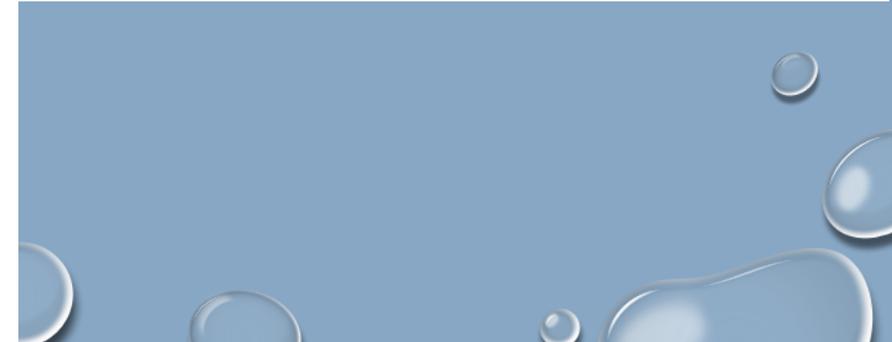
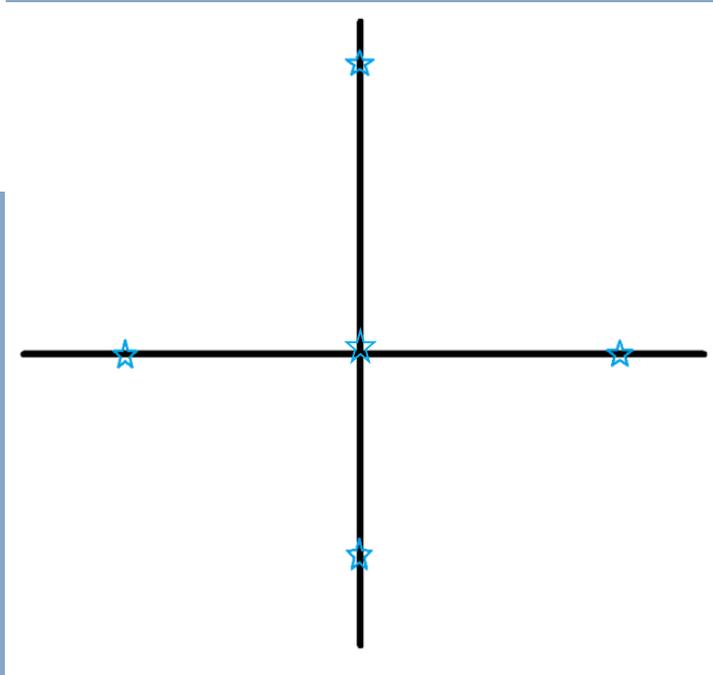
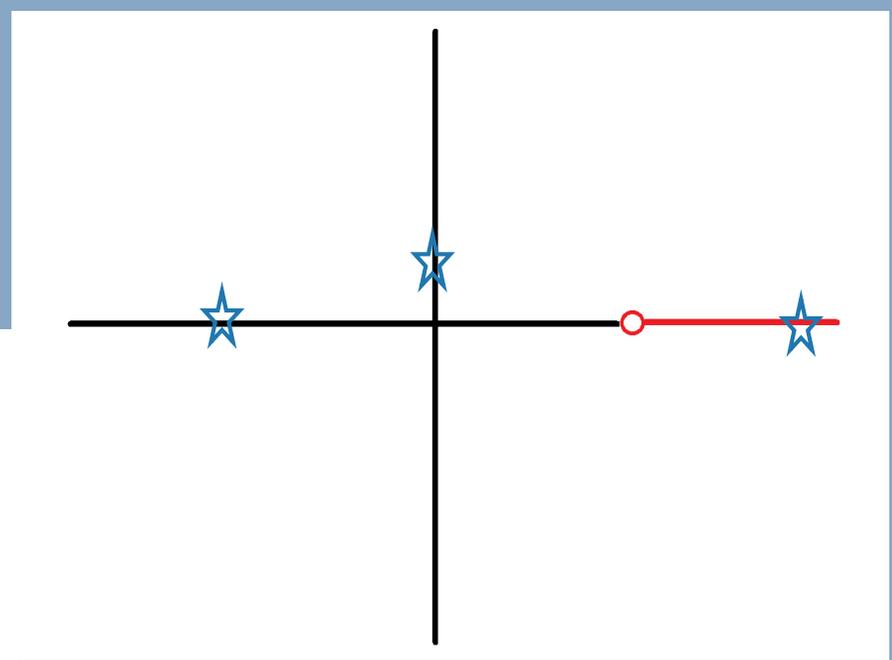
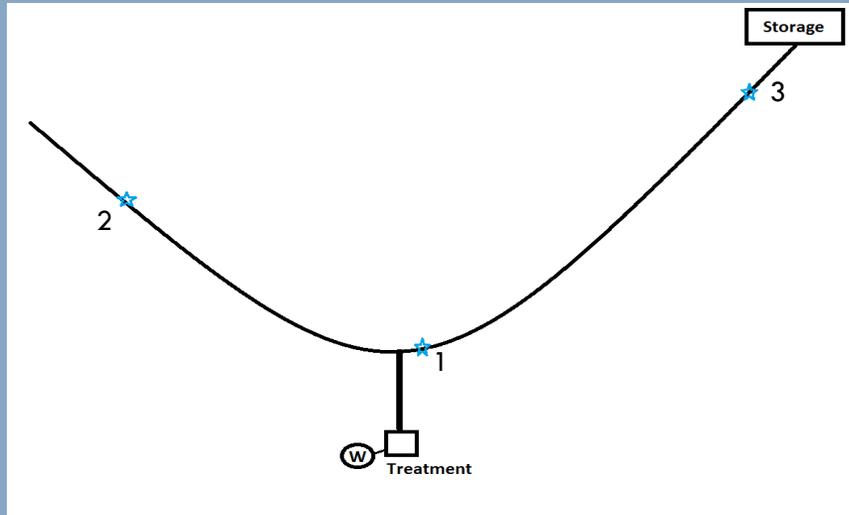


# SAMPLE TAP SELECTION – DOS AND DON'TS

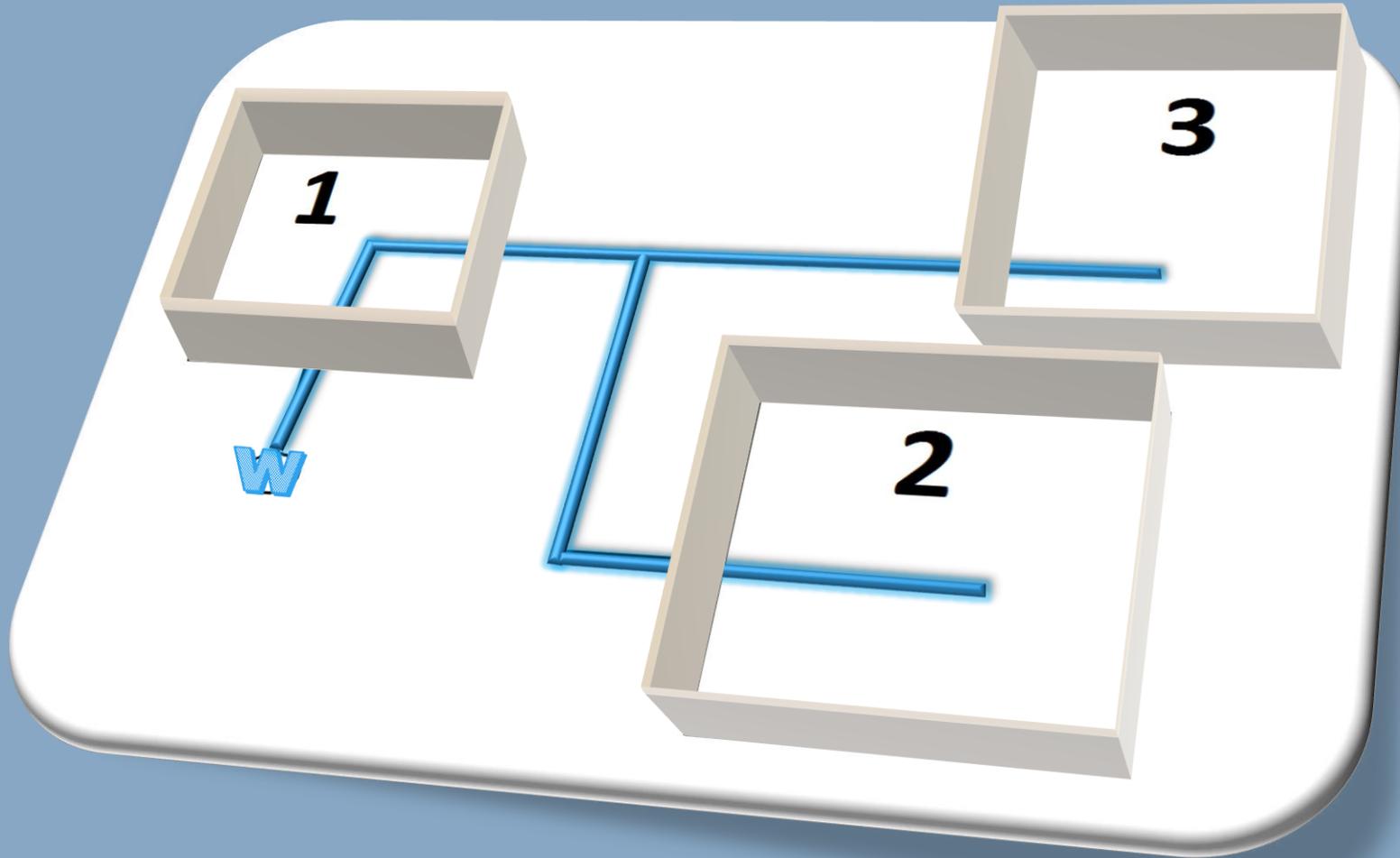


# SAMPLE SITING

Sample sites must be representative of water in the entire distribution system.



# SAMPLE SITING – MULTIPLE BUILDINGS



- RCAP Guidance: <https://vimeo.com/136001193>
- Select sites representative of water in the entire distribution system.
- Assemble supplies, including good, clean, sample bottles
- If the system chlorinates, make sure to have a chlorine residual test kit.

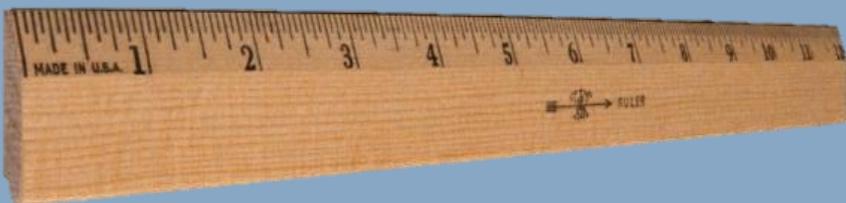


- Make sure the sample tap is in good working order, no attachments, no outdoor hose bibs.
- Disinfect faucet/tap.
- Run the **COLD** water 5-10 minutes to clear the internal plumbing and service lines – consider using a thermometer to identify when the temperature stabilizes.



# SAMPLING TECHNIQUE

- While the water is running, complete the lab forms and associated paperwork.
- Adjust the flow down to  $1/8$ -inch, about the width of a pencil.



- Remove the sample bottle cap, keep it away from the running water and pointed down.

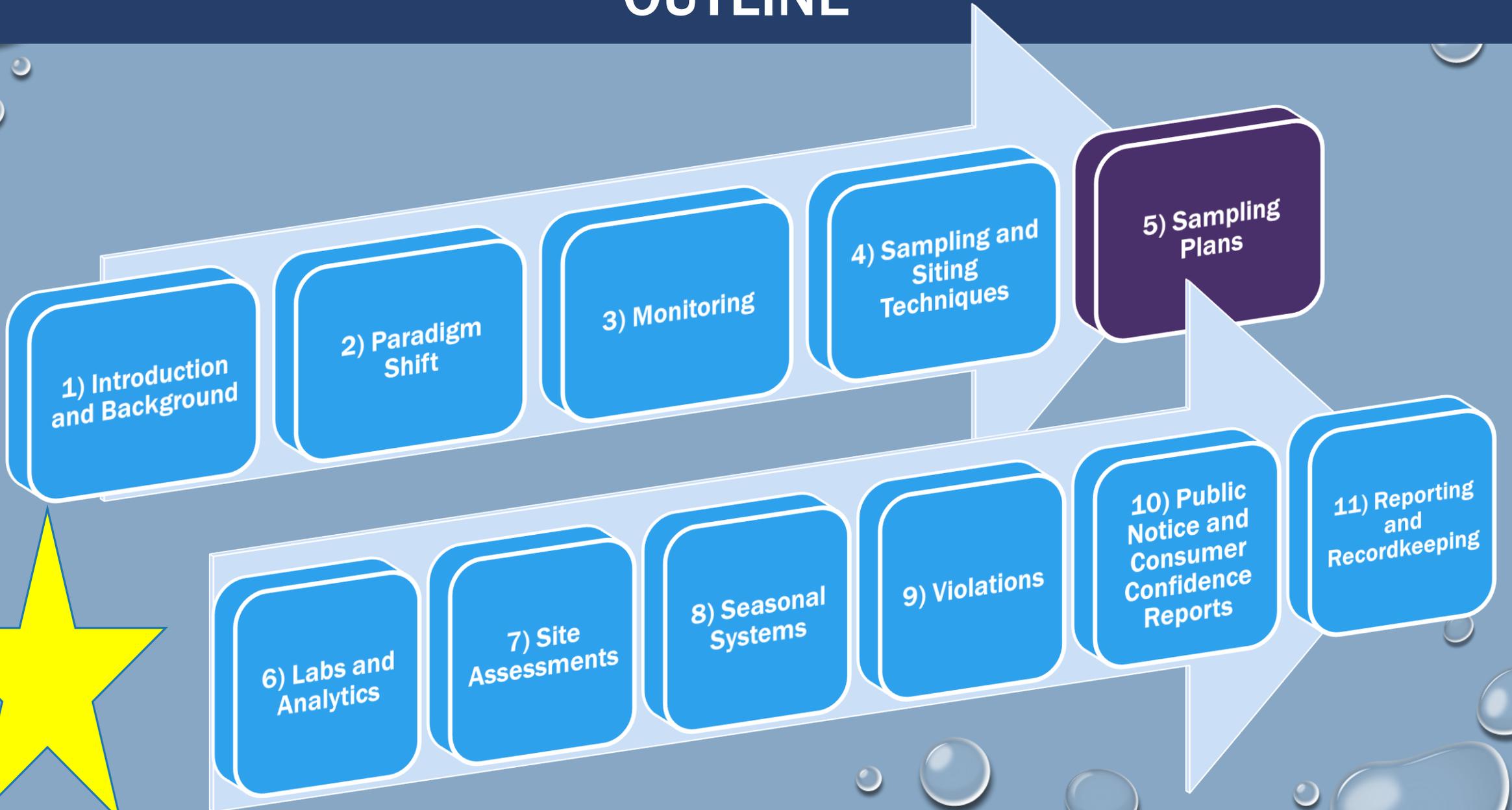
- Do not rinse the bottle, do not remove preservative/dechlorinating agent in the bottle.
- Fill the bottle to the neck. Need to leave some space, but make sure to have enough (at least 100 mL) volume to be analyzed.
- Once full, replace the cap.
- Put the bottle into a cooler, refrigerator, or on ice.
- Should be kept between 0 and 10° C





- If chlorinating, take a chlorine residual from the tap, write it on the lab paperwork.
- Turn off the tap and re-connect any aerators or accessories.
- Make sure laboratory form is filled out completely and correctly.
- Coolers used to transport samples should be cleaned daily.
- **Get sample(s) to the lab within 24 hours of collection.**
- **Sample early in the week and early in the monitoring period.**

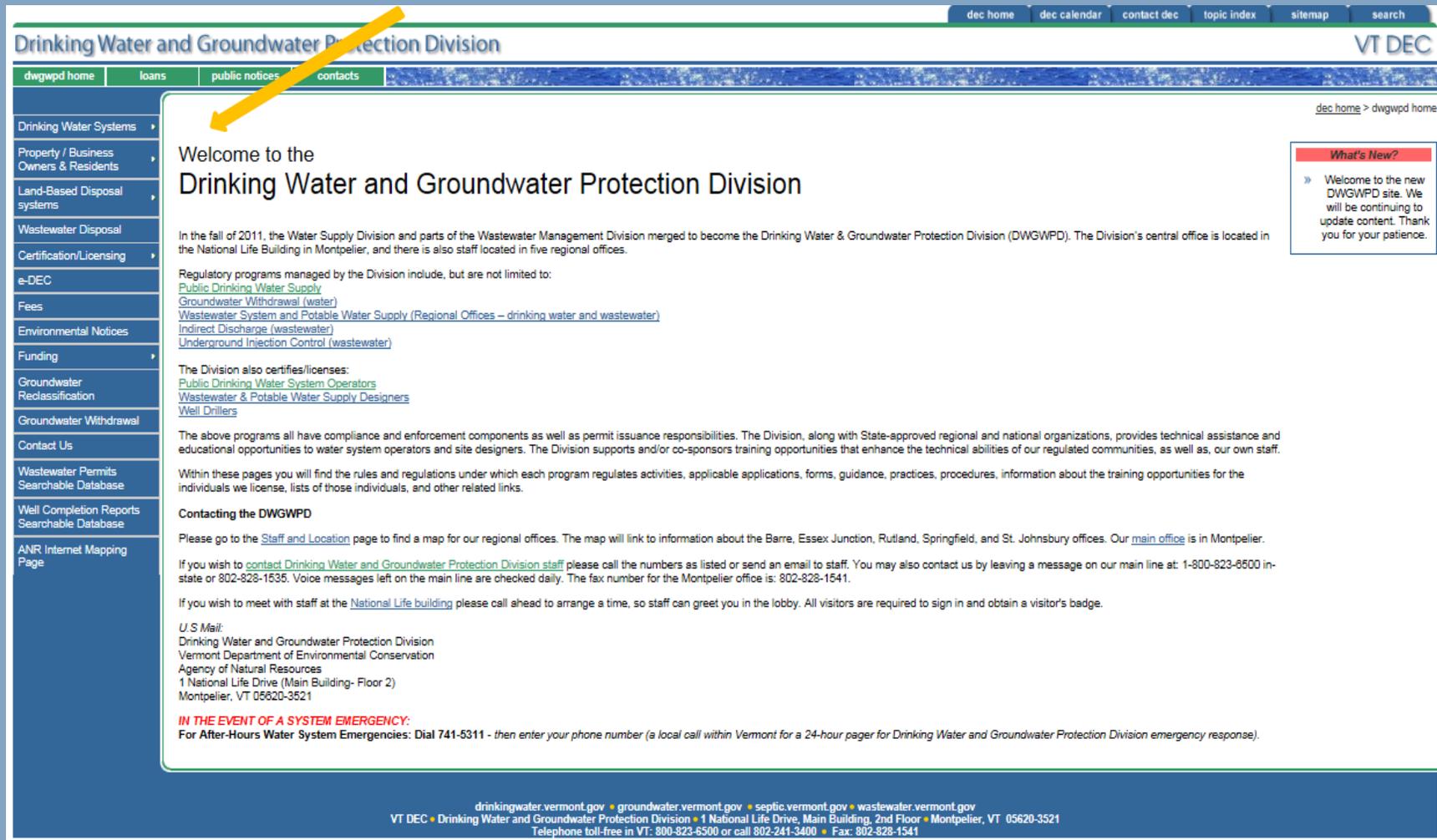
# OUTLINE



# STEP 1: FINDING THE FORM

GO TO: [WWW.DRINKINGWATER.VT.GOV](http://WWW.DRINKINGWATER.VT.GOV)

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Telephone toll-free in VT: 800-823-6500 or call 802-241-3400 • Fax: 802-828-1541

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## Welcome to the Drinking Water and Groundwater Protection Division

In the fall of 2011, the Water Supply Division and parts of the Wastewater Management Division merged to become the Drinking Water & Groundwater Protection Division (DWGWP). The Division's central office is located in the National Life Building in Montpelier, and there is also staff located in five regional offices.

Regulatory programs managed by the Division include, but are not limited to:

- [Public Drinking Water Supply](#)
- [Groundwater Withdrawal \(water\)](#)
- [Wastewater System and Potable Water Supply \(Regional Offices – drinking water and wastewater\)](#)
- [Indirect Discharge \(wastewater\)](#)
- [Underground Injection Control \(wastewater\)](#)

The Division also certifies/licenses:

- [Public Drinking Water System Operators](#)
- [Wastewater & Potable Water Supply Designers](#)
- [Well Drillers](#)

The above programs all have compliance and enforcement components as well as permit issuance responsibilities. The Division, along with State-approved regional and national organizations, provides technical assistance and educational opportunities to water system operators and site designers. The Division supports and/or co-sponsors training opportunities that enhance the technical abilities of our regulated communities, as well as, our own staff.

Within these pages you will find the rules and regulations under which each program regulates activities, applicable applications, forms, guidance, practices, procedures, information about the training opportunities for the individuals we license, lists of those individuals, and other related links.

### Contacting the DWGWP

Please go to the [Staff and Location](#) page to find a map for our regional offices. The map will link to information about the Barre, Essex Junction, Rutland, Springfield, and St. Johnsbury offices. Our [main office](#) is in Montpelier.

If you wish to [contact Drinking Water and Groundwater Protection Division staff](#) please call the numbers as listed or send an email to staff. You may also contact us by leaving a message on our main line at: 1-800-823-6500 in-state or 802-828-1535. Voice messages left on the main line are checked daily. The fax number for the Montpelier office is: 802-828-1541.

If you wish to meet with staff at the [National Life building](#) please call ahead to arrange a time, so staff can greet you in the lobby. All visitors are required to sign in and obtain a visitor's badge.

*U.S Mail:*  
Drinking Water and Groundwater Protection Division  
Vermont Department of Environmental Conservation  
Agency of Natural Resources  
1 National Life Drive (Main Building- Floor 2)  
Montpelier, VT 05620-3521

**IN THE EVENT OF A SYSTEM EMERGENCY:**  
For After-Hours Water System Emergencies: Dial 741-5311 - then enter your phone number (a local call within Vermont for a 24-hour pager for Drinking Water and Groundwater Protection Division emergency response).

What's New?  
» Welcome to the new DWGWP site. We will be continuing to update content. Thank you for your patience.

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# FINDING THE FORM

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[dec home](#) > [dwgwpd home](#) > [drinking water systems](#) > [pcws](#) > applications & forms

### Public Water Systems - Applications & Forms

**APPLICATIONS**

**Operations Permit Applications:**  
[Consecutive System Exemption Application](#)  
[Operating Permit Application](#)  
[Certified Operator Application \(Class 2, 3, 4 & D\)](#)  
[Statement regarding Child Support and VT Taxes](#)  
[Certified Operator Renewal Application \(Class 2, 3, 4 & D\)](#)  
[Phase II/IV Monitoring Waiver Application](#)  
[Renewal Application](#)

**Construction Permit Application:**  
[Construction Permit Application](#) **UPDATED**

[Source Water Permit Application Process - Effective Immediately](#)

**Source Water Permit Applications:**  
[Public Community Water System](#)  
[Non-Transient Non-Community Water System](#)  
[Transient Non-Community Water System](#)  
[Domestic Bottled or Bulk Water System](#)  
[Source Testing Review Application](#)  
[Well ID Sheet-Production Well](#)  
[Well ID Sheet-Observation Well](#)  
[Avoidance of Filtration for Surface Water and GWUDI of Surface Water](#)  
[Certification of Water Source Likely Affected by Agricultural Lands](#)  
[GWUDI Exemption Application & Guidance ; Laboratories performing Microscopic Particulate Analysis \(MPA\) Testing](#)

[File Transfer Protocol \(FTP\) Instructions](#) **NEW**

**FORMS**  
[Water System Officials Contact Form](#)  
[Public Water Supply Survey Form](#)  
[Public Notice Certification Form](#)  
[Lead and Copper Sampling Plan](#)  
[Lead and Copper Sampling Plan Guidance](#)  
[RCTR Coliform Sampling Plan & Guidance Less than 1000 Population](#) **UPDATED** (formerly called bacteriological sampling plan)  
[RCTR Coliform Sampling Plan & Guidance Greater than 1000 Population](#) **UPDATED** (formerly called bacteriological sampling plan)  
[Bulk Water Hauling as an Emergency Form and Guidance](#)  
[Extended Period- Bulk Water Hauling as an Emergency Source \(to submit weekly\)](#)  
[Monthly Operations Report for Filtered Surface Water Systems](#)  
[Monthly Operations Report Instructions for Filtered Surface Water Reporting](#)  
[Monthly Operations Report for Groundwater and Systems Purchasing Groundwater](#)

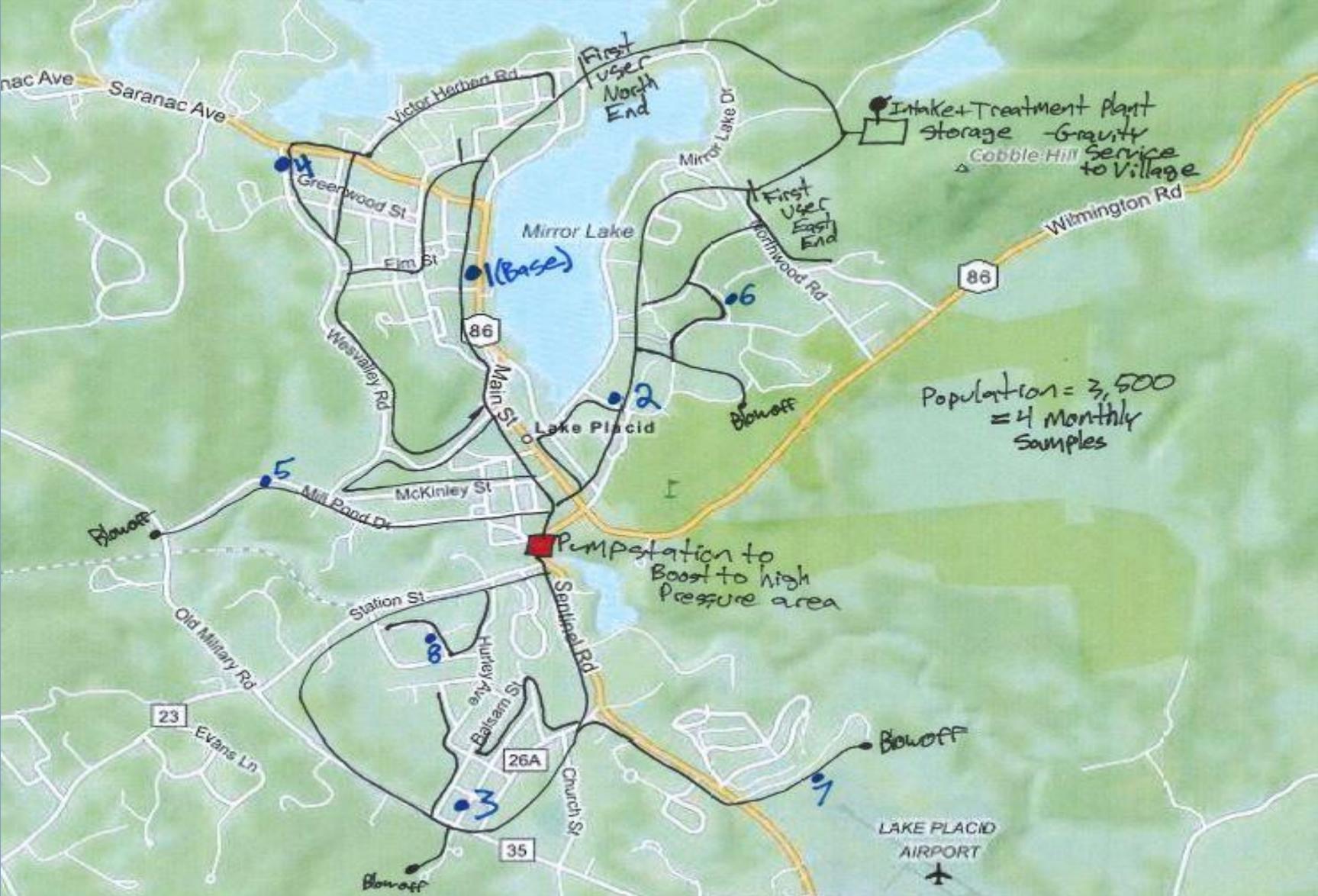
- Drinking Water Systems
- Property / Business Owners & Residents
- Land-Based Disposal systems
- Wastewater Disposal
- Certification/Licensing
- e-DEC
- Fees
- Environmental Notices
- Funding
- Groundwater Reclassification
- Groundwater Withdrawal
- Rules
- Contact Us
- Wastewater Permits Searchable Database
- Well Completion Reports Searchable Database
- ANR Internet Mapping Page

# STEP 2: BASIC SYSTEM INFO

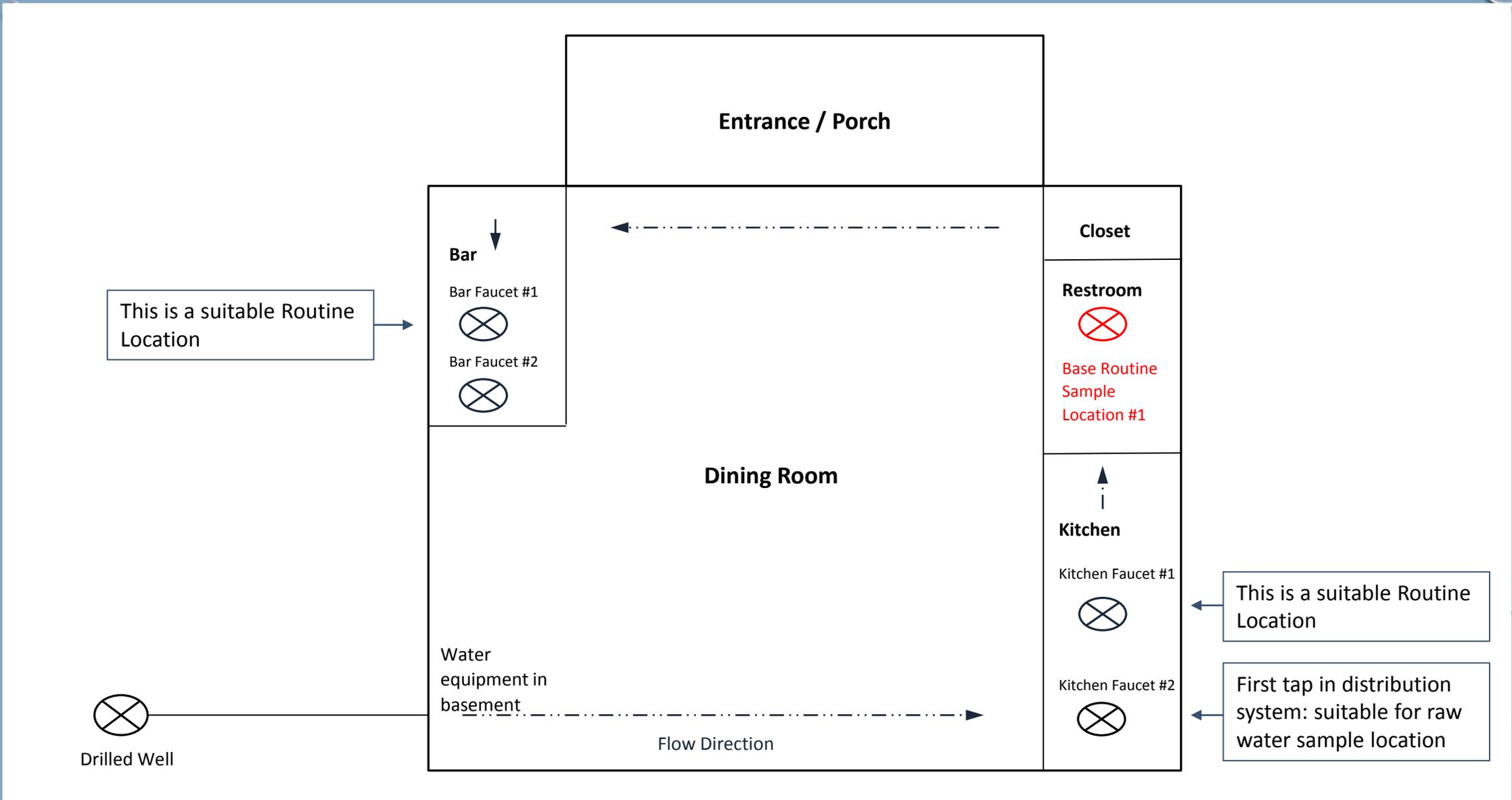
System Information		
<b>System Name:</b>	<b>WSID Number:</b>	<b>System Type (check one):</b> <input type="checkbox"/> TNC <input type="checkbox"/> NTNC <input type="checkbox"/> Community
<b># of Service Connections</b> (if there are only a few connections, <u>also</u> write in the total number of available sampling taps):	<b>Source Water Type (check one):</b> <input type="checkbox"/> Groundwater <input type="checkbox"/> Surface Water/GWUDI <input type="checkbox"/> Consecutive	
<b>System Population:</b>	<b># of Pressure Zones</b> (if the system relies on a well pump, gravity storage, or single pump station to deliver water to all users in the distribution system, enter "1"):	
<b>Dates of Operation (SEASONAL SYSTEMS ONLY):</b> Open: _____ Close: _____		
<b>Number of Distribution Systems (check one):</b> <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> more than 3. If the system has more than one distribution system, identify the distribution system to which this form pertains: DS00 _____		

ion of 1,000 or less. For systems with multiple dis is required. **Attach a map to this plan.** The map , clearly labeled coliform sampling locations tha tap locations (if the system uses groundwater), lo

# STEP 2 CONTINUED: MAP SUBMISSION (COMMUNITY)



# STEP 2 CONTINUED: MAP SUBMISSION (TNC)



# STEP 4: COMPLETE SAMPLE LOCATIONS AND JUSTIFICATION

	Routine Location Address	Justification	5 Connections Upstream For repeat locations Numbers 2 – 5 are optional	5 Connections Downstream For repeat locations Numbers 2 – 5 are optional
1	Routine Location 1 (Base): _____		1	1
			2	2
			3	3
			4	4
			5	5
● ● ●				
7	Routine Location 7: _____		1	1
			2	2
			3	3
			4	4
			5	5

**Instructions:** The locations for all routine samples taken for compliance purposes must be identified in this table. 1) List up to 7 routine monitoring locations. These are the locations where the required routine compliance samples (monthly or quarterly) are collected. If possible, list the 911 addresses for each location. If those addresses are not available, list where the samples are taken. 2) Explain why the system chooses to sample at each location under the “Justification” column. 3) List at least one and up to five repeat samples within 5 connections upstream and 5 connections downstream for each Routine sampling location listed.

# STEP 5: SAMPLE SCHEDULE AND SOURCE INFORMATION

Fill out  
sample  
schedule

Don't  
forget to  
sign the  
form!

Fill out  
source  
information  
(Groundwater  
systems only)

**Table 2 – Quarterly Monitoring**  
To be completed only by year-round NTNC and TNC systems using groundwater. Systems must alternate between the Routine 1 (Base) location and at least one other Routine location as identified on the previous page, depending on system complexity. Identify in what quarter each Routine sample location will be sampled.

Quarter	Routine Sampling Location
1 <sup>st</sup> : January 1 through March 31	
2 <sup>nd</sup> : April 1 through June 30	
3 <sup>rd</sup> : July 1 through September 30	
4 <sup>th</sup> : October 1 through December 31	

**Table 3 – Monthly Monitoring**  
To be completed by any public water system serving 1,000 people or less. Systems must alternate between the Routine 1 (Base) location and at least one other Routine location as identified on the previous page, depending on system complexity. Identify in what month each Routine sample location will be sampled.

Month	Routine Sampling Location
January	
February	
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	

**Table 4 – Source Information**  
Provide the names/numbers of groundwater sources (wells, springs, etc.) and the source sample tap location at which each source may be sampled prior to any treatment. If a raw water sampling tap is not available prior to the first user, identify the first tap/faucet closest to where the water enters the system.  
Attach additional sheets if necessary

Source Name/Number	Source Sample Tap Location	Is this a combined source sample location?
Source 1:		
Source 2 (if applicable):		
Source 3 (if applicable):		
Source 4 (if applicable):		

Revised 8/20/2015 3

# OUTLINE



- Samples must be analyzed by a VT Department of Health certified drinking water lab
- List of Laboratories certified for drinking water analysis:  
[http://healthvermont.gov/enviro/ph\\_lab/water\\_test.aspx](http://healthvermont.gov/enviro/ph_lab/water_test.aspx)
- Labs must be certified for each method used for analysis & each contaminant analyze
- Colilert® Analytical Method for TC & EC – VT Labs

# ANALYTICAL REQUIREMENTS

- **Standard sample volume required for analysis:**  
**100 mL – Regardless of analytical method**
- **Only required to determine the presence or absence of total coliform & *E. coli*.**
- **The time from sample collection to initiation of test medium incubation: May not exceed 30 hours**
- **Sodium thiosulfate will typically be included by the lab to neutralize the chlorine in the water sample.**

# REJECTION OF SAMPLES

51

**BR – Broken**

**CL – Chlorine Present**

**EH - Exceeds hold Time**

**HS – Excessive head space**

**FZ – Frozen sample**

**IN – Insufficient Information**

**VO – Insufficient Volume**

**LA – Lab accident**

**LT – Leak in transit**

**IP – Invalid sampling protocol**



**When notified by lab: Collect replacement sample within 24 hours**

Mark the type of compliance sample on form for lab:

- **Routine (RT):**

- Sample(s) required by monitoring schedule.
- Additional Routine (NTNCs and TNCs on quarterly only) 3 samples the following month after TC+ Routine sample.

- **Repeat (RP):** Samples required immediately after TC+ Routine sample.

- **Trigger Source (TG):** Ground water source sample required immediately after TC+ Routine sample.

**\*NOTE – If sample is marked “Special” or “Other” it will not be used for compliance purposes (SP)!**

# RTCR SAMPLE COLLECTION FORM (CONT.)

- Mark sample collection information on lab form
- Sample location information is on the system's monitoring schedule:

Paper

COLIFORM BACTERIA MONITORING			
Sampling Locations	Facility		Sample Point ID
	ID	Facility Name	Description
	DS001	DIST SYSTEM-BROOKWELL (UNITS 1-	TC001
	DS002	DIST SYSTEM-ROAD WELL (UNITS 32	TC002

Analyte/Group Name	Monitoring Period	Monitoring Frequency
COLIFORM BACTERIA	1/1 - 12/31	2 every Month

Web

COLIFORM BACTERIA			
Facility ID	Facility Name	Sample Point	
DS001	DISTRIBUTION SYSTEM	TC001	
DS002	DISTRIBUTION SYSTEM	TC002	

Analyte	Monitoring Period	Start - End Date	Sample #
COLIFORM (TCR)	1/1 - 12/31	7/1/2015 -	2 per QT

QT - Quarter    YR - Year  
 MN - Month    DL - Day  
 1T - One Time Only

# RTCR & GWR SAMPLE TYPE, FACILITY ID & SAMPLE POINT ID

Sample Type	Facility ID	Sample PT ID	Sample Location Description
<b>Routine, Distribution (RT)*</b>	DS001, DS002..etc.	TC001, TC002..etc.	<b>Specific Address/Name for sample location</b>
<b>Repeat, Distribution (RP)*</b>	DS001, DS002..etc.	TC001, TC002..etc.	
<b>Trigger, Source (TG)** -Groundwater systems</b>	WL001, WL002..etc.	RW001, RW002..etc.	
<b>Replacement Routine, Repeat or Trigger Source</b>	<b>See above, same as original sample.</b>		
<b>Special (SP)</b>	<b>See above for “Special” distribution or source sample</b>		
<b>* TCR = Total Coliform Rule</b>		<b>** GWR = Groundwater Rule</b>	

# OUTLINE



X2



## Level 1 Site Assessment

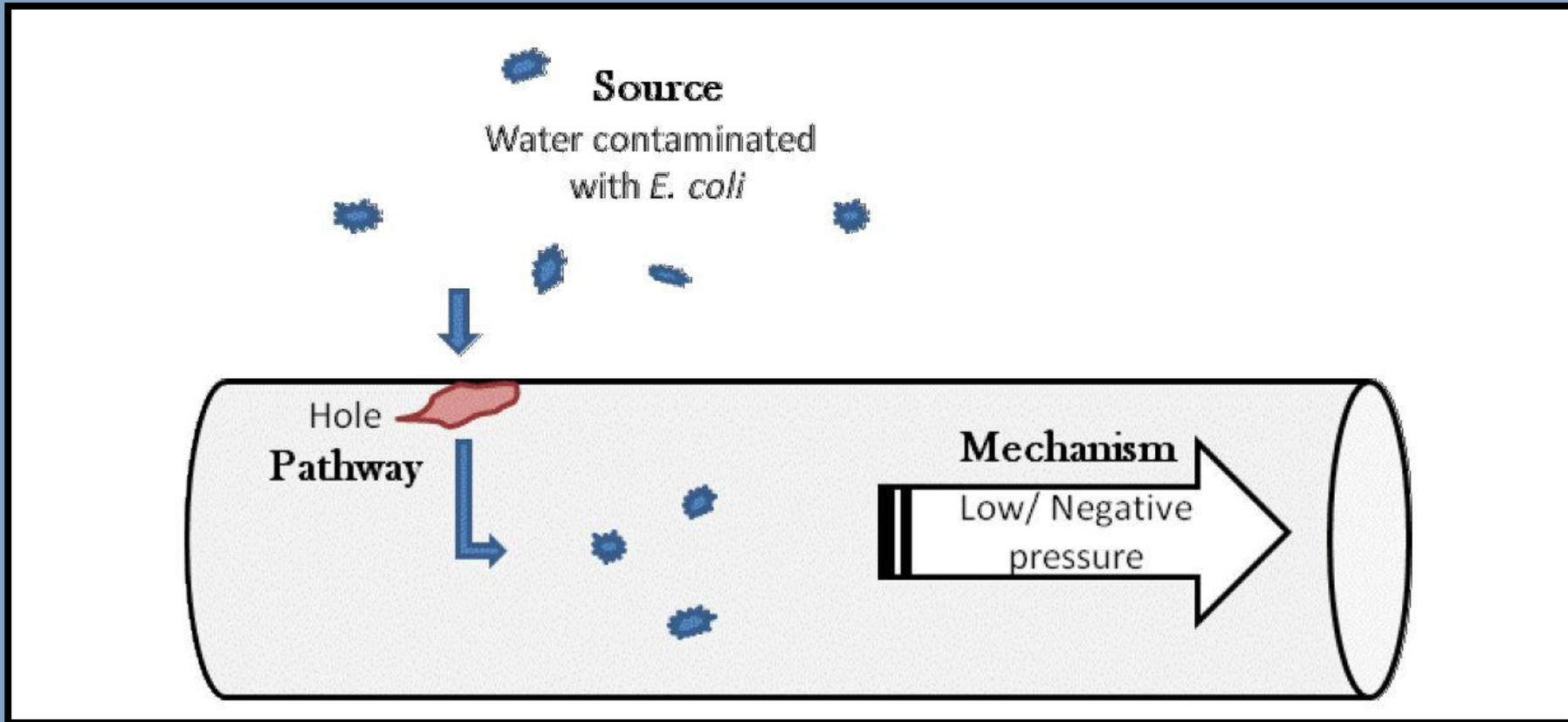
- 2 or more TC+ samples in a month
- Failure to take EVERY repeat sample following TC+ Routine sample

## Level 2 Site Assessment

- E. coli MCL
- Second Level 1 trigger in 12 months

- Bacteria may be present in the distribution if the following simultaneously occur:
  1. **Source** of bacteria
  2. **Pathway** into the distribution system or breach in system integrity
  3. **Mechanism** that allows bacteria to be carried on this pathway or that allows bacteria within biofilms, corrosion tubercles, or sediment to break free and enter the water.

# CAUSES OF CONTAMINATION



**1. Level 1 Site Assessment trigger:**

- a) Two or more TC + samples in a month; or
- b) System fails to take EVERY required repeat sample following at TC + routine sample.

Resulting in a Level 1 Site Assessment to be performed within 30 days of the trigger

Level 1 Site Assessments can be performed by any validly-certified drinking water system operator with the same class certification as the water system or greater.

# COMPLETED LEVEL 1 ASSESSMENT FORM

For Division Use Only: Reviewer \_\_\_\_\_  
Date Reviewed \_\_\_\_\_

## Level 1 Assessment Form

Completion and submittal of this form is required following two or more positive total coliform samples within one month or when an inadequate number of repeat samples are collected after a routine total coliform positive sample.

---

Drinking Water and Groundwater Protection Division

**System Information**

System Name: <i>ABC Water System</i>	WSID #: <i>12345</i>	Class of System: 1A 1B <input checked="" type="checkbox"/> 3 4 4A1 4A 4B 4C D <small>(circle one)</small>
Date of Assessment: <i>6/26/15</i>	Type of Water System (circle one):	TNC / Community / <input checked="" type="checkbox"/> NTNC

---

**Instructions**

This form must be completed and submitted within 30 days of learning of the requirement to perform the Level 1 Assessment. Review Sections 1 - 6 below. Answer every question that applies to the water system by circling "Y" for yes or "N" for no. If a specific question is not applicable to the water system, circle "NA" for that question. If an entire section does not apply to the water system (such as if the system does not have treatment or storage facilities), circle "NA" in the gray section heading bar. Please then fill out Sections 7, 8, and 9 completely. In order for this form to be complete, it must be signed and dated.

**Section 1: Changes or Events** NA

a) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N lower disinfectant residual than expected	g) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N water quality parameters out of range
b) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N changes, different/abnormal operational activity	h) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N new source added, emergency supply used
c) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N firefighting event/hydrant flushing	i) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N flooding: source(s) or distribution system
d) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N signs of vandalism/forced entry	j) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N visible indicators of unsanitary conditions
e) <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N rapid snowmelt	k) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N low (< 20 psi) or loss of distribution system pressure
f) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N heavy rainfall	l) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N other

---

**Section 2: Sampling Site(s)/Protocol**

a) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N unclean or unsuitable sample tap	f) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N inadequate tap flushing
b) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N hot water intrusion	g) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N auto sensing faucet/swivel-type faucet
c) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N change in conditions at sample site	h) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N improper hold time/storage temperature
d) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N improper sample container	i) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N sampler error
e) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N aerator was not removed	j) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N other

---

**Section 3: Source(s)**

Drilled/Bedrock Wells	
a) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N potential source of contamination	f) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N damaged or compromised well casing
b) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N defective/damaged/loose well cap/well seal	g) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N damaged or unscreened vent
c) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N well/pump failure (quantity concerns)	h) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N unprotected opening in pump assembly
d) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N damaged pitless adaptor	i) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N source overflow construction
e) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N damaged electrical conduit	j) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N other
Springs or Dug Wells	
a) <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N potential source of contamination	a) <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N potential source of contamination
b) <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N infiltration of surface run-off	b) <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N recent storm event
c) <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N condition of spring box or well construction	c) <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N infiltration
d) <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N source overflow construction	d) <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N atypical source water quality
e) <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N other	e) <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N other
Consecutive Connections	
a) <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N flooded valve/meter vault	d) <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N atypical pressure/flow from wholesaler
b) <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N damaged interconnection	e) <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N lower incoming disinfectant residual than expected
c) <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N inadequate backflow protection	f) <input checked="" type="checkbox"/> NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N other

---

**Section 4: Treatment Process(es)** NA

a) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N change in flow rates	e) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N interruption in treatment or power loss
b) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N inadequate disinfection or treatment	f) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N recent installation or repair of treatment equipment
c) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N turbidity measurements out of range	g) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N treatment added or changed
d) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N operation and maintenance procedures not followed	h) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N malfunctioning treatment equipment
	i) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N other

**Section 5: Storage Tank(s)** NA

a) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N improper maintenance practices	f) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N torn vent/overflow screens
b) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N presence of dead animals or insects	g) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N lower disinfectant residual than expected
c) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N cover/access hatch not sealed	h) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N signs of vandalism or forced entry
d) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N incorrect operation of level control valves	i) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N deterioration, rust, holes, or other breaches
e) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N vent/overflow construction inadequate	j) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N other

---

**Section 6: Distribution** NA

a) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N power loss (pump station)	j) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N operation of valves resulting in equipment breakage
b) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N standing water/debris in valve vault	k) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N operation of air-relief/vacuum valves
c) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N low disinfection residual	l) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N improper operation of pumps
d) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N pump or valve failure	m) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N illegal or unauthorized use of hydrants
e) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N improper surge control	n) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N inadequate distribution system pressure
f) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N main breaks or leaks	o) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N backflow/cross-connection event
g) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N unprotected cross connection	p) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N plumbing/piping modifications/improvements
h) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N improper operation of valves	q) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N other
i) NA <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N waterlogged pressure/bladder tanks	

---

**Section 7: Written Description of Sanitary Defect(s) that were Circled Above**

This space must be filled out. Use this space to expand upon and provide additional information that supports the findings identified in Sections 1 - 6 above.

Explain those defects that are circled above. If no sanitary defects were identified, you must state so below.

*Prior to taking routine sample, facility staff replaced bladder tanks. No shocking or disinfection occurred. Also, detected lower than normal chlorine residual in distribution.*

---

**Section 8: Corrective Action(s) and Proposed Timetable**

Use the space below to describe the corrective action(s) taken and the date(s) completed. If the water system requires additional time to complete the corrective action(s), provide the proposed improvement timetable below.

Water system management and/or owners must be made aware of the proposed timetable of improvement(s).

*6/26/15 - Shocked and flushed entire system. Increased chlorine feed rate. Will continue to monitor chlorine residuals and will respond accordingly. Took a SP sample as follow-up and it was clean.*

---

**Section 9: Certification**

Print Name: <i>First Last</i>	Title: <i>operator</i>
Signature: _____	Date: <i>6/26/15</i>
<input checked="" type="checkbox"/> Certified Water System Operator <small>(circle one) Class 1A 1B 2 3 4 4A1 4A 4B 4C D</small>	<input type="checkbox"/> DWGWSP Staff

I certify that I am the person authorized to fill out this form and that the information contained herein is true, accurate, and complete to the best of my knowledge and ability at the time the assessment was performed.

---

RETURN TO

TCR Rule Coordinator  
Drinking Water and Groundwater Protection Division  
One National Life Drive - Mtln 2  
Montpelier, VT 05620-3521  
Fax: 802-828-1541

Complete this form and submit it to the Division within 30 days of learning of the requirement to perform the Level 1 assessment.

# LEVEL 1 ASSESSMENT FORM COMPLETION

Section 3: Source(s)			
<b>Drilled/Bedrock Wells</b>			
a)	NA	Y / <b>N</b>	potential source of contamination
b)	NA	<b>Y</b> / N	defective/damaged/loose well cap/well seal
c)	NA	Y / <b>N</b>	well/pump failure (quantity concerns)
d)	NA	Y / <b>N</b>	damaged pitless adaptor
e)	NA	<b>Y</b> / N	damaged electrical conduit
f)	NA	Y / <b>N</b>	damaged or compromised well casing
g)	NA	Y / <b>N</b>	damaged or unscreened vent
h)	NA	Y / <b>N</b>	unprotected opening in pump assembly
i)	NA	Y / <b>N</b>	source overflow construction
j)	NA	Y / <b>N</b>	other _____
<b>Springs or Dug Wells</b>		<b>Surface Water</b>	
a)	<b>NA</b>	Y / N	potential source of contamination
b)	<b>NA</b>	Y / N	infiltration of surface run-off
c)	<b>NA</b>	Y / N	condition of spring box or well construction
d)	<b>NA</b>	Y / N	source overflow construction
e)	<b>NA</b>	Y / N	other _____
a)	<b>NA</b>	Y / N	potential source of contamination
b)	<b>NA</b>	Y / N	recent storm event
c)	<b>NA</b>	Y / N	Infiltration
d)	<b>NA</b>	Y / N	atypical source water quality
e)	<b>NA</b>	Y / N	other _____
<b>Consecutive Connections</b>			
a)	<b>NA</b>	Y / N	flooded valve/meter vault
b)	<b>NA</b>	Y / N	damaged interconnection
c)	<b>NA</b>	Y / N	inadequate backflow protection
d)	<b>NA</b>	Y / N	atypical pressure/flow from wholesaler
e)	<b>NA</b>	Y / N	lower incoming disinfectant residual than ex
f)	<b>NA</b>	Y / N	other _____

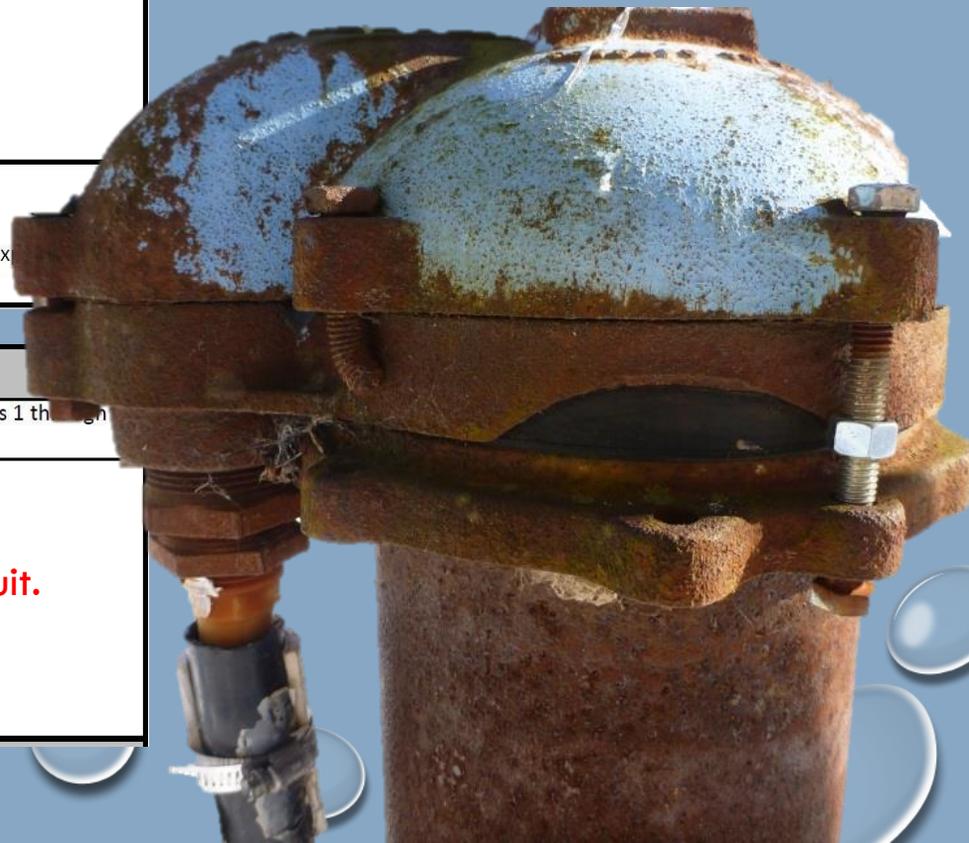
**Section 7: Written Description of Sanitary Defect(s) that were Circled Above**

This space must be filled out. Use this space to expand upon and provide additional information that supports the findings identified in Sections 1 through 6 above.

Explain those defects that are circled above. If no sanitary defects were identified, you must state so below.

Well cap is cracked, missing bolts, loose bolts. Cracked electrical conduit.

REQUIRED





## Section 8: Corrective Action(s) and Proposed Timetable

Use the space below to describe the corrective action(s) taken and the date(s) completed. If the water system requires additional time to complete the corrective action(s), provide the proposed improvement timetable below.

Water system management and/or owners must be made aware of the proposed timetable of improvement(s).

**4/15/2015 Replaced cap with modern sanitary cap. Replaced conduit with new parts and installed a frost sleeve.**

# LEVEL 1 ASSESSMENT FORM COMPLETION

Section 5: Storage Tank(s)					NA		
a)	NA	Y / <input checked="" type="radio"/> N	improper maintenance practices	f)	NA	Y / <input checked="" type="radio"/> N	torn vent/overflow screens
b)	NA	Y / <input checked="" type="radio"/> N	presence of dead animals or insects	g)	NA	Y / <input checked="" type="radio"/> N	lower disinfectant residual than expected
c)	NA	Y / <input checked="" type="radio"/> N	cover/access hatch not sealed	h)	NA	Y / <input checked="" type="radio"/> N	signs of vandalism or forced entry
d)	NA	Y / <input checked="" type="radio"/> N	incorrect operation of level control valves	i)	NA	<input checked="" type="radio"/> Y / <input type="radio"/> N	deterioration, rust, holes, or other breaches
e)	NA	Y / <input checked="" type="radio"/> N	vent/overflow construction inadequate	j)	NA	Y / <input checked="" type="radio"/> N	other _____



## Section 7: Written Description of Sanitary Defect(s) that were Circled Above

This space must be filled out. Use this space to expand upon and provide additional information that supports the findings identified in Sections 1 through 6 above.

Explain those defects that are circled above. If no sanitary defects were identified, you must state so below.

Storage tank level control probe penetrations not sealed. Evidence of rodent and insect activity in vault.

REQUIRED

# LEVEL 1 ASSESSMENT FORM COMPLETION

## Section 8: Corrective Action(s) and Proposed Timetable

Use the space below to describe the corrective action(s) taken and the date(s) completed. If the water system requires additional time to complete the corrective action(s), provide the proposed improvement timetable below.

Water system management and/or owners must be made aware of the proposed timetable of improvement(s).

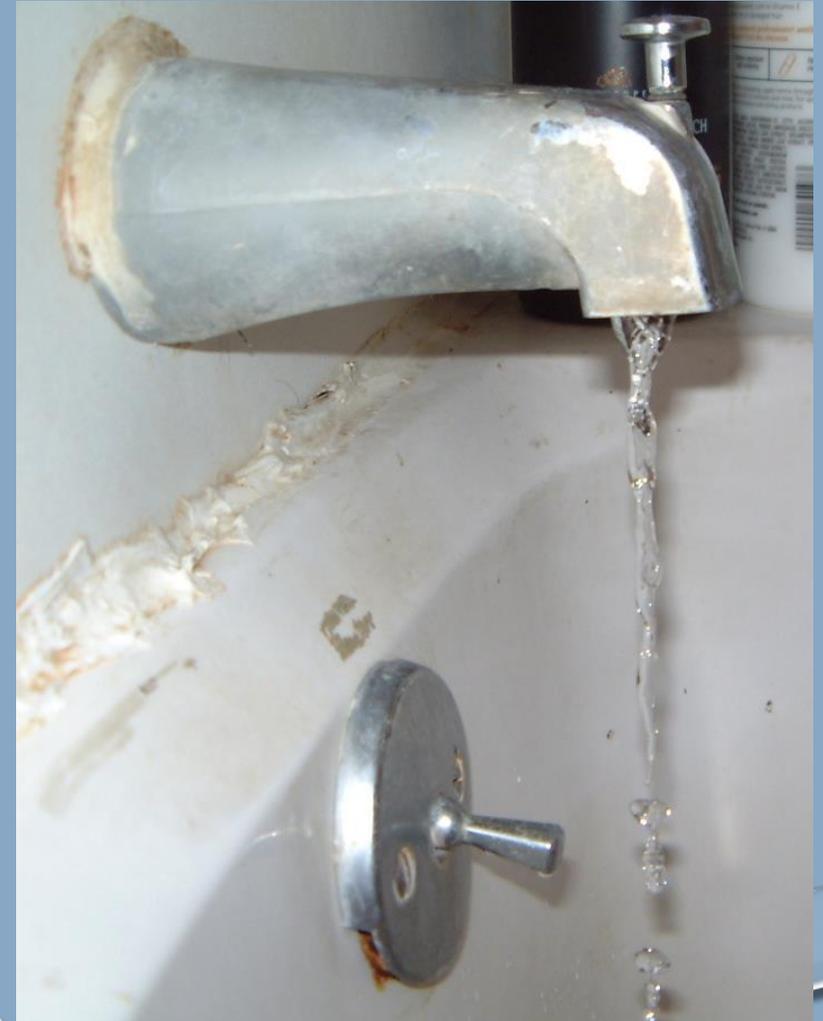
**7/10/2015 – Install watertight and sanitary conduit and fittings. Sealed extra penetration. Performed shock disinfection of storage tank and flushed via distribution system.**



# LEVEL 1 ASSESSMENT FORM COMPLETION

Section 2: Sampling Site(s)/Protocol									
a)	NA	<input checked="" type="radio"/> Y	<input type="radio"/> N	unclean or unsuitable sample tap	f)	NA	Y	<input checked="" type="radio"/> N	inadequate tap flushing
b)	NA	<input checked="" type="radio"/> Y	<input type="radio"/> N	hot water intrusion	g)	NA	Y	<input checked="" type="radio"/> N	auto sensing faucet/swivel-type faucet
c)	NA	Y	<input checked="" type="radio"/> N	change in conditions at sample site	h)	NA	Y	<input checked="" type="radio"/> N	improper hold time/storage temperature
d)	NA	Y	<input checked="" type="radio"/> N	improper sample container	i)	NA	Y	<input checked="" type="radio"/> N	sampler error
e)	NA	Y	<input checked="" type="radio"/> N	aerator was not removed	j)	NA	Y	<input checked="" type="radio"/> N	other _____

Section 7: Written Description of Sanitary Defect(s) that were Circled Above
<p><u>This space must be filled out.</u> Use this space to expand upon and provide additional information that supports the findings identified in Sections 1 through 6 above.</p> <p><b>Explain those defects that are circled above. If no sanitary defects were identified, you must state so below.</b></p> <p><b>Used unsuitable sample tap – tub faucet with mixing valve and internal shower valve.</b></p>



# LEVEL 1 ASSESSMENT FORM COMPLETION

## Section 8: Corrective Action(s) and Proposed Timetable

Use the space below to describe the corrective action(s) taken and the date(s) completed. If the water system requires additional time to complete the corrective action(s), provide the proposed improvement timetable below.

Water system management and/or owners must be made aware of the proposed timetable of improvement(s).

7/22/2015 Reviewed online resources for taking samples. Will no longer sample from a bathtub faucet. Will use only clean, non-mixing, non-swivel faucets with external threads for future sampling.



# LEVEL 1 ASSESSMENT FORM COMPLETION

Section 6: Distribution			NA
a)	NA	Y / <input checked="" type="radio"/> N	power loss (pump station)
b)	NA	Y / <input checked="" type="radio"/> N	standing water/debris in valve vault
c)	NA	Y / <input checked="" type="radio"/> N	low disinfection residual
d)	NA	Y / <input checked="" type="radio"/> N	pump or valve failure
e)	NA	Y / <input checked="" type="radio"/> N	improper surge control
f)	NA	<input checked="" type="radio"/> Y / N	main breaks or leaks
g)	NA	Y / <input checked="" type="radio"/> N	unprotected cross connection
h)	NA	Y / <input checked="" type="radio"/> N	improper operation of valves
i)	NA	Y / <input checked="" type="radio"/> N	waterlogged pressure/bladder tanks
j)	NA	Y / <input checked="" type="radio"/> N	operation of valves resulting in equipment breakage
k)	NA	Y / <input checked="" type="radio"/> N	operation of air-relief/vacuum valves
l)	NA	Y / <input checked="" type="radio"/> N	improper operation of pumps
m)	NA	Y / <input checked="" type="radio"/> N	illegal or unauthorized use of hydrants
n)	NA	<input checked="" type="radio"/> Y / N	Inadequate distribution system pressure
o)	NA	Y / <input checked="" type="radio"/> N	backflow/cross-connection event
p)	NA	Y / <input checked="" type="radio"/> N	plumbing/piping modifications/improvements
q)	NA	Y / <input checked="" type="radio"/> N	other _____

## Section 7: Written Description of Sanitary Defect(s) that were Circled Above

This space must be filled out. Use this space to expand upon and provide additional information that supports the findings identified in Sections 1 through 6 above.

Explain those defects that are circled above. If no sanitary defects were identified, you must state so below.

Identified a leak on Market Street near where the positive samples were located. Fixed the leak but have reason to believe there are other leaks on that main, further down due to lower than normal system pressure and increased production.



- Since this fix is going to take some time to complete fully, the system needs to request more time and propose a completion date.
- This proposed date will need to be approved by the state.

## Section 8: Corrective Action(s) and Proposed Timetable

Use the space below to describe the corrective action(s) taken and the date(s) completed. If the water system requires additional time to complete the corrective action(s), provide the proposed improvement timetable below.

Water system management and/or owners must be made aware of the proposed timetable of improvement(s).

July 29, fixed the initial leak then shocked and flushed the main. We need to trace this line and assess if another leak may be present. Pressure on the south side of town is lower than usual and system production is higher than normal for this time of year.

We need additional time to find and fix the leak. We propose a completion date of September 1, 2015 for the repair.

- Correct all sanitary defects found during the assessment.
- Within 30 days of triggering the assessment:
  - Complete Assessment & form
  - Submit assessment form
  - Correct Defects
- If the system needs more time, propose a schedule to State.



The State determines if the assessments and schedules are sufficient

- **Must be permanent or be able to be made permanent under a schedule.**
- **Must follow industry best management practices.**
- **Must meet the construction and operation standards of the Water Supply Rule.**



- **Incomplete:**
  - **Unsigned, no WSID, no system name, no date, system type or operator classification**
- **Sanitary defects circled but not explained in section 7**
- **No completion date or proposed timeline for corrective action(s)**

## 2. Level 2 Site Assessment Trigger:

a) E. coli MCL Violation:

b) Second Level 1 assessment Trigger  
in **12** rolling months

RT	RP
TC +	EC +
EC +	TC +
EC +	No RP
EC+	TC+ EC not analyzed

Resulting in a Level 2 Site Assessment to be performed within 30 days of the trigger

Level 2 Site Assessments are more in-depth and must be performed by the state or a party approved by the state.

# TRIGGERED SITE ASSESSMENTS SUMMARY

	<b>Level 1 Site Assessment</b>	<b>Triggered Level 2 Site Assessment</b>
<b>Who</b>	Certified operator of the same class or greater	State or party approved by the state (likely a contractor)
<b>What</b>	A 2 page form that walks through the system and identifies sanitary defects	A more complicated inspection, document review, and sample site analysis.
<b>When</b>	Within 30 days of the second TC+ in a month or after failing to take all repeat samples.	Within 30 days of triggering a second Level 1 assessment in 12 months or an EC MCL.
<b>Why</b>	Protection of Public Health, identify pathways or potential pathways of contamination.	

- **Year-round, Non-Community Systems, on Groundwater, under 1,000 in population**
  - **When required to sample monthly**
  - **Need a voluntary Level 2 Assessment or Sanitary Survey within last 12 months (among other criteria) to be graduated to quarterly monitoring.**

# OUTLINE

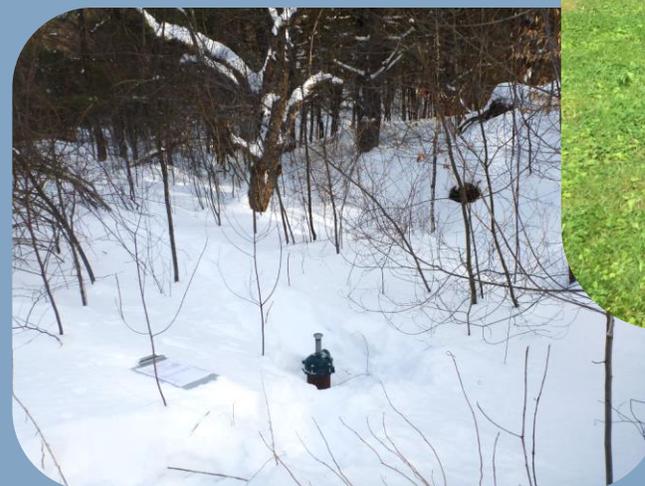


## Seasonal Systems:

- Do not serve water to a public population (25 or more people) year round.
- Starts-up and Shuts-down at the beginning and end of an operating season.
- Does not necessarily de-pressurize.

## Requirements:

1. Monthly Routine Monitoring
2. State-Approved Seasonal Start-Up Procedure and Certification





**VERMONT**  
DRINKING WATER AND GROUNDWATER PROTECTION

**MONITORING SCHEDULE**

**VT000000 SEASONAL SYSTEM**  
Schedule Year: 2016   System Status: A   System Type: NC   Primary Source: GW   Population: 34

**COLIFORM BACTERIA MONITORING**

Sampling Locations	Facility		Sample	
	ID	Facility Name	Point ID	Description
	DS001	DISTRIBUTION SYSTEM	TC001	

Analyte/Group Name	Monitoring Period	Monitoring Frequency
COLIFORM BACTERIA	5/1 - 10/31	1 every Month

- Required to collect 1 TC sample in each month the system is in operation.

**Seasonal systems are required to complete a State-Approved Seasonal Start-Up Procedure & Certification prior to serving water to the public.**

**Goal: Identify and eliminate pathways of contamination prior to serving water to the public.**

- 1. Comprehensive visual inspection of the water system.**
- 2. Shock-Chlorinate and/or Flush the Water System.**
- 3. Collect Your Monthly Sample.**
- 4. Sign the Certification of Completion.**
- 5. Submit the Form to DWGWP.**

# SEASONAL STARTUP PROCEDURE

 <p>VERMONT ENVIRONMENTAL CONSERVATION</p> <p>Drinking Water and Groundwater Protection Division</p>	<h2 style="text-align: center;">Seasonal Start-Up Procedures and Certification</h2> <h3 style="text-align: center;">Public Water Systems Serving Groundwater</h3>			
<p>The use and submission of this form is recommended for all seasonal groundwater public water systems at the beginning of the 2015 operating season before serving water to the public. These procedures are <b>recommended</b> for the 2015 operating season, but will be <b>required</b> for the 2016 operating season according to the Revised Total Coliform Rule.</p>				
<h3>System Information</h3>				
System Name:	WSID #:	Class of System:      1A 1B 2 3 4 4A1 4A 4B 4C D (circle one)		
<p>What months are you open? _____</p>				
<p>What day was this start-up procedure completed? _____</p>				
<p>What day do you plan on opening in 2015? _____</p>				
<h3>Instructions</h3>				
<p style="text-align: center;">The Division recommends that all seasonal systems complete this form at the beginning of the 2015 operating season before serving water to the public.</p> <p>Complete Step 1 below. Certify that each element was evaluated by checking the "Complete" or "NA" box if the element is Not Applicable to the Water System. Shock-chlorinate and flush the water system and collect the routine monthly sample(s) as outlined in Steps 2 and 3 and certify they are complete by checking the "Complete" box. Sign and date the form according to Step 4 and return the form to the Division according to Step 5. <u>Return the signed and dated form to the Division prior to opening, along with any feedback you have on the use of the form itself.</u></p>				
<h3>Step 1: Visual Inspection of the Water System</h3>		<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 50%;">Complete</td> <td style="width: 50%;">NA</td> </tr> </table>	Complete	NA
Complete	NA			
<p><b>Visually inspect the source, treatment, storage, and distribution system for sanitary deficiencies.</b></p>				
<p>a) <u>If the system has a well:</u> Check the well. Make sure that the well cap is tight and intact and that no bolts are missing. Make sure that the electrical conduit is not cracked or broken. Confirm that the vent screen is in place and intact. Make sure the area around the well is graded to prevent water from ponding around the casing.</p>	<input type="checkbox"/>	<input type="checkbox"/>		
<p>b) <u>If the system has a spring:</u> Check the spring. Make sure the cover is adequately sealed and no insects, rodents, or debris are able to get into the spring. Make sure any vents or overflows have adequate screening on the ends of the pipes. Make sure the spring box integrity prevents surface water infiltration. Make sure there are no new potential sources of contamination near the spring.</p>	<input type="checkbox"/>	<input type="checkbox"/>		
<p>c) <u>If the system utilizes treatment:</u> Make sure the treatment equipment is operational and maintained. Make sure chemical storage tanks are cleaned and sealed and all solutions are refreshed. Make sure the system has adequate test equipment, such as a chlorine test kit with valid reagent packets. Make sure any backwash or discharge lines have an air gap and are not hard-piped into drains.</p>	<input type="checkbox"/>	<input type="checkbox"/>		
<p>d) <u>If the system utilizes water storage:</u> Make sure the storage tank has been inspected and cleaned (if necessary) within the last 5 years. Make sure the access hatch/cover is gasketed, watertight, and made of the appropriate materials (no wooden covers). Make sure the storage tank is free from insects, rodents, and debris. Make sure any overflows, drains, or vents have screens covering the pipes. Make sure the overflow and drain pipes terminate above ground and prevent contamination from surface water.</p>	<input type="checkbox"/>	<input type="checkbox"/>		
<p>e) <u>Distribution:</u> Make sure the system maintains adequate pressure. Make sure there are no cross-connection hazards. Make sure pumps and valves are operating properly. Make sure valve pits are free of standing water and debris. Confirm that there are no obvious signs of leaks or line breaks.</p>	<input type="checkbox"/>	<input type="checkbox"/>		
<p>f) <u>Routine Sample Locations:</u> Make sure routine sampling locations are identified, that faucets are appropriate for total coliform testing (no swivel faucets, separate hot and cold faucets if possible), and that sample taps and sinks are clean.</p>	<input type="checkbox"/>	<input type="checkbox"/>		

# SEASONAL STARTUP PROCEDURE

<b>Step 2: Shock-Chlorinate and/or Flush the Water System</b> After visually inspecting the water system and making any necessary improvements, shock-chlorinate and/or flush portions of the water system that may include, but not be limited to, the source, storage facilities, treatment, and the distribution system. Write a brief summary of the shock-chlorination procedure implemented in the space provided.		Complete
[Empty space for summary]		<input type="checkbox"/>
a) Chlorine residual introduced to distribution system (if measured): _____		
b) Duration of time chlorine maintained in the distribution system (if applicable): _____		
<b>Step 3: Collect a Routine Monthly Sample</b> After shock-chlorinating and/or flushing the system, collect a total coliform bacteria sample any time during the first month of operation and send it to a certified laboratory for analysis.		Complete
a) Collect one sample at any time during the first month of operation. The sample may be collected before or after water is made available to the public.		<input type="checkbox"/>
b) Code the sample as Routine (RT) on the laboratory chain of custody.		
<b>Step 4: Certification of Completion</b> Upon completion of all necessary steps above, fill out the certification below.		
Print Name	Title	
Signature	Date	
I certify that I am the person authorized to fill out this form and that the information contained herein is true, accurate, and complete to the best of my knowledge and ability at the time the procedure was performed.		
<b>Step 5: Return Form to the DWGPD</b> Submit a copy of the completed form to the Drinking Water and Groundwater Protection Division no later than 10 days following the month of service start-up (e.g. The report is due by June 10th for systems returned to service in May). Keep a copy of this form for your records.		
TNC Program Specialist Drinking Water and Groundwater Protection Division One National Life Drive - Main 2 Montpelier, VT 05620-3521 Fax: 802-828-1541		

## Step 1: Visual Inspection of the Water System

### a) Visually inspect the Source: Well

- Is the cap bolted and tight?
- Is the electrical conduit secured to the cap?
- Is the cap / conduit broken or cracked?
- Is there a screen on the vent?
- Is there adequate drainage?



## Step 1: Visual Inspection of the Water System

### b) Visually inspect the Source: Spring

- Is the cover sealed and tight?
- Does the source need to be cleaned of debris and sediment?
- Are there indications of insect / rodent activity?
- Are the vents / overflows screened?
- Do the vents / overflow terminate 18" above grade?



## Step 1: Visual Inspection of the Water System

### c) Visually inspect the Treatment Plant

- Maintained and operational?
- Is your chemical solution fresh?
- Are chemical storage cleaned and sealed?
- Did your chemical reagents expire? Is your equipment calibrated?
- Backwash / discharge line have air gaps?



## Step 1: Visual Inspection of the Water System

### d) Visually inspect the Storage Tank

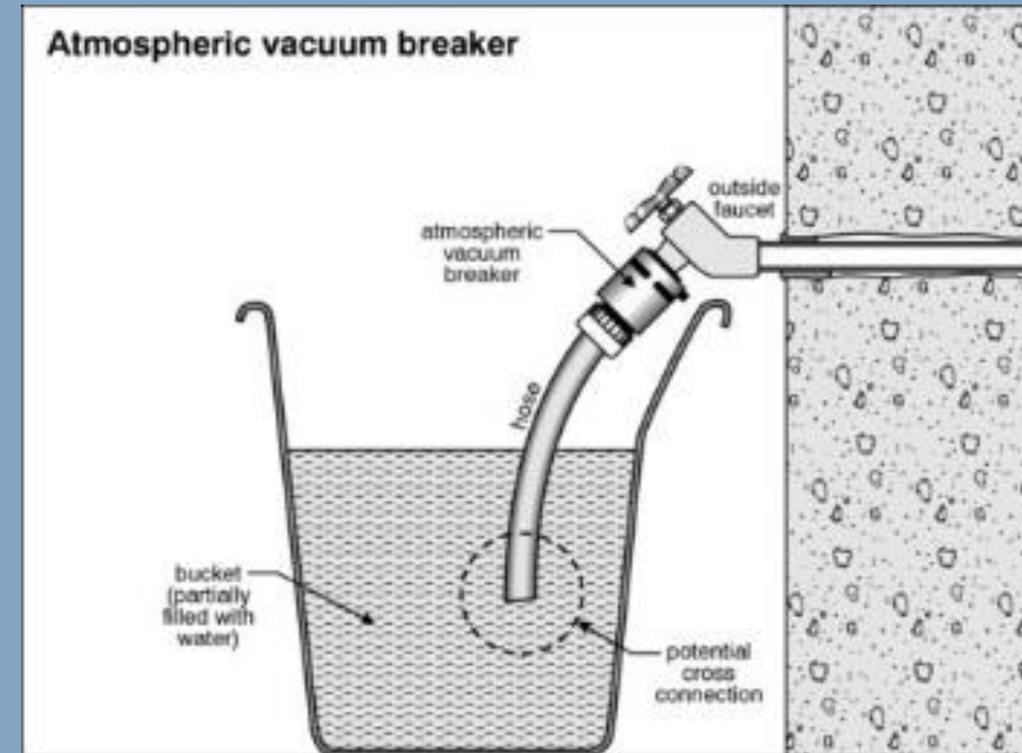
- Has the tank been inspected / cleaned?
- Is the integrity of your storage tank maintained?
- Watertight cover?
- Sealed penetrations?
- Is the vent / overflow / drain screened?
- Does the vent / overflow / drain terminate 18" above grade?



## Step 1: Visual Inspection of the Water System

### e) Visually inspect the Distribution System

- Does the system maintain adequate pressure?
- Are there any cross-connection hazards?
- Are hoses fitted with vacuum breakers / backflow prevention devices?
- Are pumps and valves operating properly?
- Are valve pits free of standing water?
- Are there signs of leaks / line breaks?



[http://www.homesmsprealestateblog.com/images/2008/07/13/1547\\_2.jpg](http://www.homesmsprealestateblog.com/images/2008/07/13/1547_2.jpg)

## Step 1: Visual Inspection of the Water System

### e) Visually inspect Sample Locations

- Identify routine sample locations.
- Avoid swivel / mixing faucets.
- Avoid automatic faucets.
- Avoid internal threads.
- Remove aerators.
- Make sure sample tap is clean and accessible.





## Steps 3 – 5: Sample, Sign, Submit

### Step 3: Take your Sample!

- Collect your monthly routine monitoring bacteria sample.

### Step 4: Sign the Certification of Completion

- Upon completion of Steps 1 – 3 sign the certification form.

### Step 5: Submit to DWGWP

- Submit signed form to the DWGWP no later than 10 days following the month of startup.

<b>Step 4: Certification of Completion</b> Upon completion of all necessary steps above, fill out the certification below.	
Print Name	Title
Signature	Date
I certify under penalty of law that I am the person authorized to fill out this form, and the information contained herein is true, accurate and complete to the best of my knowledge and belief.	
<b>Step 5: Return Form to the DWGPD</b> Submit a copy of the completed form to the Drinking Water and Groundwater Protection Division no later than 10 days following the month of service start-up (e.g. The report is due by June 10th for systems returned to service in May). Keep a copy of this form for your records.	
TNC Program Specialist Drinking Water and Groundwater Protection Division One National Life Drive - Main 2 Montpelier, VT 05620-3521 Fax: 802-828-1541	

# OUTLINE



## RTCR Violation Types

- 1. E. Coli MCL Violation (Tier 1)**
- 2. Treatment Technique Violation (Tier 2)**
- 3. Monitoring Violation (Tier 3)**
- 4. Reporting Violation (Tier 3)**

# E. COLI MCL VIOLATION

- TC+ routine sample followed by a EC+ repeat sample
- EC+ routine sample followed by TC+ (or EC+) repeat sample
- Fails to test for E. coli when a repeat sample is TC+
- EC+ sample followed by a failure to collect all repeat samples

## E. Coli MCL Violation

- TC+ RT → EC+ RP
- EC+ RT → TC+ RP (or EC)
- TC+ RT → TC+ RP and E. coli not analyzed
- EC+ RT → All Repeats not Taken

E. Coli violations are Tier 1 which require public notice within 24 hours.

# TREATMENT TECHNIQUE VIOLATION

- Failure to conduct the required assessment within 30 days of the trigger
- Failure to correct all sanitary defect(s) found through an assessment within 30 days of the trigger or in accordance with a State-approved schedule.
- Seasonal system does not complete start-up procedure prior to serving water to the public.

Treatment Technique Violations are Tier 2 which require public notice within 30 days.

- Failure to collect every required routine or additional routine sample in a compliance period
- Failure to test for E. coli following a routine sample that is TC+

Monitoring violations are Tier 3 which require public notice within 1 year

- Failure to submit a monitoring report or completed assessment form after a system properly conducts monitoring or an assessment in a timely manner.
- Failure to notify the State of an EC + sample the day the system learns of the EC detection.
- Failure of a seasonal system to submit a certification of completion of the State-approved start-up procedure.

Reporting violations are Tier 3 which require public notice within 1 year

# COMPLIANCE GUIDE

Sample Results		E. Coli MCL Violation?	Required Assessment
RT Sample	RP Sample		
<b>EC +</b>	<b>TC +</b>	<b>YES</b>	<b>Level 2</b>
<b>EC +</b>	<b>Any Missed</b>		
<b>TC +</b>	<b>EC +</b>		
<b>TC +</b>	<b>TC+ (E.coli not analyzed)</b>		
<b>TC +</b>	<b>Any Missed</b>	<b>NO</b>	<b>Level 1*</b>
<b>TC +</b>	<b>TC+</b>		
<b>TC +</b>	<b>TC -</b>	<b>NO</b>	<b>NO</b>
<b>EC +</b>	<b>TC -</b>		

**\* Level 2 Assessment is required for second Level 1 in a rolling 12-month period**

# OUTLINE



# PUBLIC NOTICE FOR RTCR VIOLATIONS

<b>Tier</b>	<b>Deadline to provide notice</b>	<b>RTCR Violation</b>	<b>Repeat Notices</b>
<b>1</b>	<b>24 hours</b>	<b>E. Coli MCL Violation</b>	<b>Every 3 months until the situation is resolved</b>
<b>2</b>	<b>30 days</b>	<b>Treatment Technique Violation</b>	<b>Every 3 months until the situation is resolved</b>
<b>3</b>	<b>1 year</b>	<b>Monitoring Violation Reporting Violation</b>	<b>Annually until the situation is resolved</b>

**Description of violation**

**DRINKING WATER WARNING**  
 ABC Water System (VT0012345)  
water is contaminated with fecal coliform (or *E. coli*)

**When the violation occurred**

**Actions consumers should take**

**BOIL YOUR WATER BEFORE USING**

**Should alternate water supplies be used**

**Potential health effects**

Fecal coliform [or *E. coli*] bacteria were found in the water supply on 8/1/15. These bacteria can make you sick, and are a particular concern for people with weakened immune systems.

**Population at risk**

**When the system expects to resolve the violation**

What should I do?

**DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST!** Bring all water to a boil, let it boil for one minute, and let it cool before using, or use bottled water. Boiled or bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and food preparation until further notice. Boiling kills bacteria and other organisms in the water.

**What is being done to correct the violation**

**Name and phone number for more information**

Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.

**Required distribution language**

The symptoms above are not only caused by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice. People at increased risk should seek advice about drinking water from their health care providers.

What happened? What is being done?

Bacterial contamination can occur when increased run-off enters the drinking water source (for example, following heavy rains). It can also happen due to a break in the distribution system (pipes) or a failure in the water treatment process.

Two samples tested positive for *E. coli* in the Main Well distribution following a heavy rain event. Inspection of the well found some pitting in the casing and further investigation identified corrosion holes in the casing below the ground surface to a depth of 2 feet. We have contracted with a well drilling company to remove and replace the damaged portion of the well casing. We will inform you when tests show no bacteria and you no longer need to boil your water. We anticipate resolving the problem within 1 week.

For more information, please contact First Last at 802-123-4567 or  
 1 National Life Dr  
 Montpelier, VT 05620

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

**Certification**

Method(s) of Distribution: Hand delivered to each unit and posted in community building. Date Distributed: 8/2/15  
 (e.g. hand or direct delivery, posting, television, radio)

I First Last (print name) Certify, as the Responsible Person (or authorized representative) of the water system indicated above, that the public notice has been provided to customers in accordance with the delivery, content, and format requirements and deadlines in the Vermont Water Supply Rule (Chapter 21, Subchapter 21-10).

Signature: \_\_\_\_\_ Date: 8/2/15  
 Within 10 days of issuance of public notice, send a copy of the notice to:  
 Drinking Water and Groundwater Protection Division, One National Life Drive - Main 2, Montpelier, VT 05620-3521

1 - Community Water Systems may use posting as a second method, but must also use radio, television, or hand or direct delivery.

**Complete/distribute by July 1 of each year to cover the previous year**

**CCRs summarize information regarding:**

- the sources used
- detected contaminants
- compliance issues
- health and educational information

**CCRs are also a good opportunity to provide any updates:**

- system improvements over the last year
- anticipated improvements (short and long term)
- staff recognition (new staff, education, awards)

- **The number of assessments required and completed**
- **The corrective actions required and completed (derived from the assessments)**
- **What triggered the assessments (E.coli MCL or not)**
- **If an assessment or corrective action was not completed (Treatment Technique violation)**

- **Date and time of water system meetings**
- **Name and contact information for the person who can answer questions about the CCR**
- **Tables are complete and accurate**
- **Explanation of violations including steps taken to address them**
- **Progress made or a schedule to address significant deficiencies and the Permit to Operate compliance schedule activities.**
- **All sections must be complete prior to distributing**

There must be at least one form of DIRECT DELIVERY of the CCR which may include:

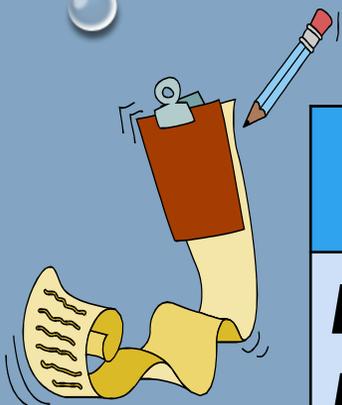
- Mailing a copy to each bill-paying customer
- Hand delivering a copy to each service connection
- Electronic delivery\* (must meet certain requirements)
  - Paper or electronic communication (e.g. email, water bill, post card notification) must provide the specific URL providing a direct link to the CCR
  - If a customer is unable to receive a CCR by the chosen electronic method, the CCR must be provided by an alternative method allowed by the Rule
  - If using an electronic delivery, a prominently displayed message and the direct URL must be include in ALL notifications of CCR availability

# OUTLINE



# REPORTING REQUIREMENTS

## Systems Must Report To The State:



REQUIREMENT	TIMING
<i>E. coli</i> MCL violation, or <i>E. coli</i> positive routine sample	By end of current business day (or next business day if state office is closed)
TT violation	By end of next business day
Level 1 or 2 assessment report	Within 30 days of learning that the system has exceeded a TT trigger

# REPORTING REQUIREMENTS, (CONT.)

## Systems Must Report To The State:

<b>REQUIREMENT</b>	<b>TIMING</b>
<b>Coliform monitoring violation</b>	<b>Within 10 days of learning of violation</b>
<b>Completion of corrective action, if occurring after submittal of an assessment report</b>	<b>When each corrective action is completed</b>
<b>Seasonal system certification of compliance with state-approved start-up procedures</b>	<b>No later than 10 days following the end of the month in which the system opened.</b>

## Systems Must Maintain Records:

REQUIREMENT	TIMING
Records of action taken by the system to correct violations	3 years
Public notices issued & certifications made	3 years
Records of microbiological analysis	5 years
Copies of monitoring plans	As long as analyses are required



## Systems Must Maintain Records:

<b>REQUIREMENT</b>	<b>TIMING</b>
Level 1 or 2 assessment forms	5 years
Documentation of corrective actions	
Other available summary documentation of sanitary defects & corrective actions	
Records of any repeat samples taken that meet the state's criteria for an extension of the 24-hour period for collecting repeat samples	

Search for operator certification Information

OR  
Search for Water System information

- Bacterial data
- Chemical data
- Current and following year Monitoring Schedules
- Always to date with latest info available to the state

[HTTPS://ANRWEB.VT.GOV/DEC/DWGWP](https://anrweb.vt.gov/dec/dwgwp)

**VERMONT**

**Drinking Water and Groundwater Protection Division**  
**Drinking Water Database Search**

Search by Operator      Search for Operator Certification Information

Search by Water System      Search for Bacteria Sample Data, Chemical Sample Data or Monitoring Schedules

Choose Result: Enter your search criteria in the text boxes provided and click the [Search] button to view results

Water System ID (WSID):

Water System Name:

Bacterial Data     Chemical Data     Current Year Monitoring Schedule     Future Year Monitoring Schedule

Choose One Above - Then Select a System

Your search returned 49 records. Click [select] to view the details.

	WSID	WSName
<a href="#">Select</a>	VT0000153	OLYMPIA MOTOR LODGE
<a href="#">Select</a>	VT0000173	CASCADES LODGE
<a href="#">Select</a>	VT0000272	SKYSHIP BASE LODGE
<a href="#">Select</a>	VT0000341	SUMMIT LODGE
<a href="#">Select</a>	VT0000410	SWISS FARM LODGE
<a href="#">Select</a>	VT0000600	KITZHOF LODGE
<a href="#">Select</a>	VT0000673	FLEUR DE LIS LODGE
<a href="#">Select</a>	VT0000701	MID MOUNTAIN LODGE
<a href="#">Select</a>	VT0000722	BIG BEARS LODGE
<a href="#">Select</a>	VT0000750	BASE LODGE

# KEY TAKEAWAYS OF THE RTCR

- The RTCR goes into effect **April 1, 2016**
  - There is no more Total Coliform MCL, E. coli MCL remains
  - No more Total Coliform-based Public Notice or Boil Water requirements in Vermont, E. coli-based boil and PN remains
  - Systems must take **3 repeat samples for each positive routine sample**
    - Monthly systems resume normal monthly monitoring the month following a routine positive sample
    - Quarterly systems must perform **3 additional routine samples** the month following a routine positive sample
    - Systems must complete each “set” of samples, regardless of sample results or triggers
  - 2 or more total coliform samples in a month triggers a site assessment
  - E. coli MCL violation requires a boil water notice and a **Level 2 Site Assessment**.
  - State precautionary boil may apply.

## Before April 1st

- Submit new bacteriological sampling plan (templates/forms forthcoming)
- Attend RTCR training – Level 1 Assessments and Sampling Plans
- Check out DWGWP website

## After April 1<sup>st</sup>

- Seasonal systems perform seasonal startup procedures and submit completed startup form to DWGWP

**Sample early in monitoring period!**

# QUESTIONS AND CONTACTS

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# ACRONYMS USED DURING THIS PRESENTATION

<b>TC</b>	Total Coliform	} + = Present - = Absent	<b>CWS</b>	Community Water System
<b>EC</b>	<i>E. coli</i>		<b>TT</b>	Treatment Technique
<b>RT</b>	Routine sample		<b>MCL</b>	Maximum Contaminant Level
<b>RP</b>	Repeat sample		<b>GW</b>	Groundwater
<b>TCR</b>	Total Coliform Rule		<b>SW</b>	Surface Water
<b>RTCR</b>	Revised Total Coliform Rule			Groundwater Under the
<b>MPN</b>	Most Probable Number		<b>GWUDI</b>	Direct Influence of Surface
<b>TG</b>	Triggered groundwater source water sample			Water
<b>NC</b>	Non-Community Water		<b>CCR</b>	Consumer Confidence
<b>TNC</b>	System (either TNC or NTNC) Transient Non-Community water system			Reports
<b>NTNC</b>	Non-Transient Non-Community water system		<b>DWGWP</b>	Drinking Water and Groundwater Protection Division
			<b>PN</b>	Public Notice